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UK METEOROLOGICAL OFFICE
GLOBAL DATA MONITORING REPORT

February 2001

Data Assimilation
Meteorological Office
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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis (the current cut-off time is approximately 7.2 hours after each analysis time). The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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United Kingdom
RG12 2SZ

2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIFTER observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At the UK Met. Office, we monitor SYNOP pressure after it has been interpolated to our Global NWP Model's surface height. For most synoptic stations (about 75%), the surface pressure (at the model surface) is calculated from the reported station-level pressure, or, if this is not available, the height of a standard pressure-level (e.g. 850 hPa or 700 hPa). If neither of these are available, or if the reported station-level pressure is deemed unreliable, the reported mean sea-level pressure is used (about 25% of SYNOPs).

Aircraft observations

Tables 4A (300-150 hPa) and 4B (1000-301 hPa) contain lists of statistics calculated from data received from all airline carriers.

Figures 3A (300-150 hPa) and 3B (1000-301 hPa) show 10 degree lat/long box average numbers of aircraft reports in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS) received per day throughout the month at Bracknell and assimilated into model runs. Observations with a vector wind difference (compared with the model background field) of >60 m s^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4A-7A (300-150 hPa) and 4B-7B (1000-301 hPa) show wind statistics for AIREP/ASDAR in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS). Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-39 show sounding statistics from the polar orbitting satellite NOAA-15. Figure 25 shows the mean daily number of ATOVS soundings, and figures 26-39 show mean and standard deviation observation-background differences for brightness temperature, for selected channels.
N.B. The sounding data is bias-corrected (and thinned) before being assimilated in the UKMO NWP model.

Figure		Weighting function peak (hPa)
26	Mean	Surface (HIRS8)
27	SD	Surface (HIRS8)
28	Mean	700 (HIRS15)
29	SD	700 (HIRS15)
30	Mean	500-700 (HIRS11)
31	SD	500-700 (HIRS11)
32	Mean	400 (HIRS4)
33	SD	400 (HIRS4)
34	Mean	700 (AMSUA5)
35	SD	700 (AMSUA5)
36	Mean	300 (AMSUA7)
37	SD	300 (AMSUA7)
38	Mean	100 (AMSUA9)
39	RMS	100 (AMSUA9)

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 have been replaced by statistics for GOES-8 and GOES-9.
5. April 96. 500 km and 120 km SATEMs replaced by 120 km resolution temperature profiles produced locally from the radiances disseminated by NESDIS.
6. February 97 Monitoring statistics for Meteosat 5 have been replaced by statistics for Meteosat 6.
7. Sept 97 Monitoring statistics for NOAA-12 removed. Figures 25-27 now show data for NOAA-11
8. January 1998. Increase in resolution of UKMO global forecast model.
9. April 1998. GOES winds ceased on 2nd March 1998, and were replaced with GOES high resolution winds from 15th.
10. June 1998. Monitoring statistics for Meteosat-6 were replaced by monitoring statistics for Meteosat-7, from 3rd June.
11. June 1998. Corrections in our processing of radiosonde data resulted in a decrease in the number of 500hPa geopotential heights in Figure 8 of about 230 per 24 hours (compared with previous reports), and a small increase in the number of 300hPa winds in Figure 9.
12. July 1998. Meteosat-5 began transmitting winds from 2nd July, at 63 degrees East (over the Indian ocean), and this data is included in the statistics.
13. July 1998. GOES-9 (at 135W) was replaced mid-month by GOES-10 (initially at 105W, moving towards 135W).
14. February 1999. Problems with NOAA-11, and TOVS data ceased to be assimilated from 26 February.
15. March 1999. UKMO introduced 3-D VAR assimilation system on 29 March, and also began assimilating ATOVS data from NOAA-15.
16. May 1999. Included statistics for ATOVS sounding data from NOAA-15.
17. September 1999. Included statistics for high resolution visible winds from Meteosat-5 and Meteosat-7.
18. October 1999. The 3-D VAR assimilation system was upgraded on 19 October, including improvements in the assimilation of ATOVS radiances, use of SSM/I surface wind speed, an improvement in the calculation of surface pressure for SYNOPs, and thinning and revision of observation errors of aircraft data.
19. November 1999. High resolution visible winds from Meteosat-5 and Meteosat-7 removed until used operationally.
20. April 2000. Aireps in Table 4 and Figures 3-7 split into ranges 300-150 hPa (A) and 1000-301 hPa (B).
21. September 2000. Corrected an error affecting the mean positions of a minority of buoys in Table 2.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH: February 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from UKMO global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA :NOBS ≥ 20 , and one or more of the following:

1.|bias| ≥ 4 hPa (pressure),
≥ 5 m s^{-1} (wind speed),
≥ 30 degrees (direction).

2.SD ≥ 6 hPa (pressure),
≥ 80 degrees (direction).

3.PGE ≥ 25

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
BOAB	ALL	P	SUR	28	0	0	3.2	-5.0	6.0
C6FE5	ALL	P	SUR	50	0	0	1.0	12.0	12.0
C6PZ3	ALL	P	SUR	34	0	0	1.2	5.5	5.6
DGSR	ALL	P	SUR	25	0	0	1.4	-4.0	4.2
DPBP	ALL	P	SUR	26	1	4	5.6	-7.2	9.1
ELVJ9	ALL	P	SUR	68	0	0	1.8	-5.3	5.6
ELWR	ALL	P	SUR	63	0	0	1.5	-5.7	5.9
ELXX4	ALL	P	SUR	30	0	0	0.7	-4.9	5.0
ELYM3	ALL	P	SUR	32	0	0	1.9	-4.3	4.7
KKFW	ALL	P	SUR	24	6	25	3.3	-1.2	3.6
LAFQ5	ALL	P	SUR	57	1	2	1.4	-7.5	7.6
OUVZ2	ALL	P	SUR	28	0	0	0.7	-6.3	6.3
P3YR5	ALL	P	SUR	33	1	3	2.0	6.0	6.3
P3YS5	ALL	P	SUR	46	0	0	1.3	5.1	5.3
UAMR	ALL	P	SUR	88	5	6	1.6	-12.3	12.4
UASX	ALL	P	SUR	27	0	0	1.7	7.0	7.2
UCJL	ALL	P	SUR	22	0	0	0.9	5.7	5.7
UCKA	ALL	P	SUR	25	0	0	2.0	-4.1	4.5
UCKG	ALL	P	SUR	29	0	0	3.3	-5.5	6.5
UCUE	ALL	P	SUR	57	27	47	4.9	-6.3	7.9
UDDE	ALL	P	SUR	36	1	3	1.5	5.6	5.8
UDYG	ALL	P	SUR	104	21	20	5.0	6.4	8.1
UGGA	ALL	P	SUR	61	0	0	2.7	-4.9	5.6
UHLE	ALL	P	SUR	76	1	1	1.2	-11.0	11.0
VCRT	ALL	P	SUR	36	0	0	2.2	-5.3	5.8
VGDX	ALL	P	SUR	24	0	0	1.5	-4.2	4.5
VVJY	ALL	P	SUR	28	0	0	1.2	-4.4	4.6
3FPA6	ALL	P	SUR	20	15	75	7.7	-7.5	10.7
8PNI	ALL	P	SUR	24	1	4	1.0	-4.8	4.9
9HWA5	ALL	P	SUR	30	0	0	4.4	-4.0	6.0
9VRA	ALL	P	SUR	38	0	0	1.3	-5.3	5.5
WIND SPEED									
CG2683	ALL	SPEED	SUR	23	0	0	3.2	-5.1	6.1
DIOB	ALL	SPEED	SUR	33	1	3	7.1	5.4	8.9
DMRX	ALL	SPEED	SUR	34	1	3	4.6	6.9	8.3
DQLM	ALL	SPEED	SUR	39	0	0	4.8	7.7	9.1
ELLE9	ALL	SPEED	SUR	36	0	0	5.4	6.5	8.5
ELNJ3	ALL	SPEED	SUR	20	0	0	3.2	5.0	5.9
ELVG2	ALL	SPEED	SUR	25	12	48	5.8	5.6	8.0
ELWP8	ALL	SPEED	SUR	43	2	5	5.3	10.3	11.6
ELWZ5	ALL	SPEED	SUR	24	0	0	3.8	5.9	7.0
JKPS	ALL	SPEED	SUR	26	0	0	4.0	5.6	6.9
LAVW4	ALL	SPEED	SUR	33	0	0	2.4	5.0	5.6
OWEB2	ALL	SPEED	SUR	34	0	0	4.2	6.9	8.1
PPSO	ALL	SPEED	SUR	39	0	0	4.3	7.4	8.5
SGAK	ALL	SPEED	SUR	24	0	0	6.1	5.5	8.2
S6PI	ALL	SPEED	SUR	44	0	0	4.4	5.6	7.1
VCRT	ALL	SPEED	SUR	34	1	3	5.0	5.9	7.8
VLST	ALL	SPEED	SUR	176	0	0	2.7	5.0	5.6
VRUN4	ALL	SPEED	SUR	69	0	0	2.4	5.0	5.5
VRVJ5	ALL	SPEED	SUR	35	26	74	9.9	10.5	14.4
V2FN	ALL	SPEED	SUR	22	0	0	4.8	7.7	9.1
V2IC	ALL	SPEED	SUR	26	0	0	4.3	6.7	8.0
V2PB9	ALL	SPEED	SUR	28	0	0	3.6	5.0	6.1
ZCAO7	ALL	SPEED	SUR	71	0	0	6.6	6.7	9.4
ZCBU8	ALL	SPEED	SUR	22	0	0	3.5	5.1	6.2
44145	ALL	SPEED	SUR	221	0	0	4.5	5.0	6.7
63116	ALL	SPEED	SUR	38	0	0	4.4	-6.1	7.5

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND DIRECTION									
C6OT7	ALL	DIRN.	SUR	23	0	0	94.5	-19.6	96.5
ELVM6	ALL	DIRN.	SUR	173	0	0	130.1	12.2	130.7
VRVJ5	ALL	DIRN.	SUR	32	26	81	60.5	68.0	91.0
9HWA5	ALL	DIRN.	SUR	20	0	0	62.9	41.8	75.6

Figure 1. SHIP/SYNOP mean daily count. FEBRUARY 2001
Main hours only
Global average number of observations in 24 hours = 21668

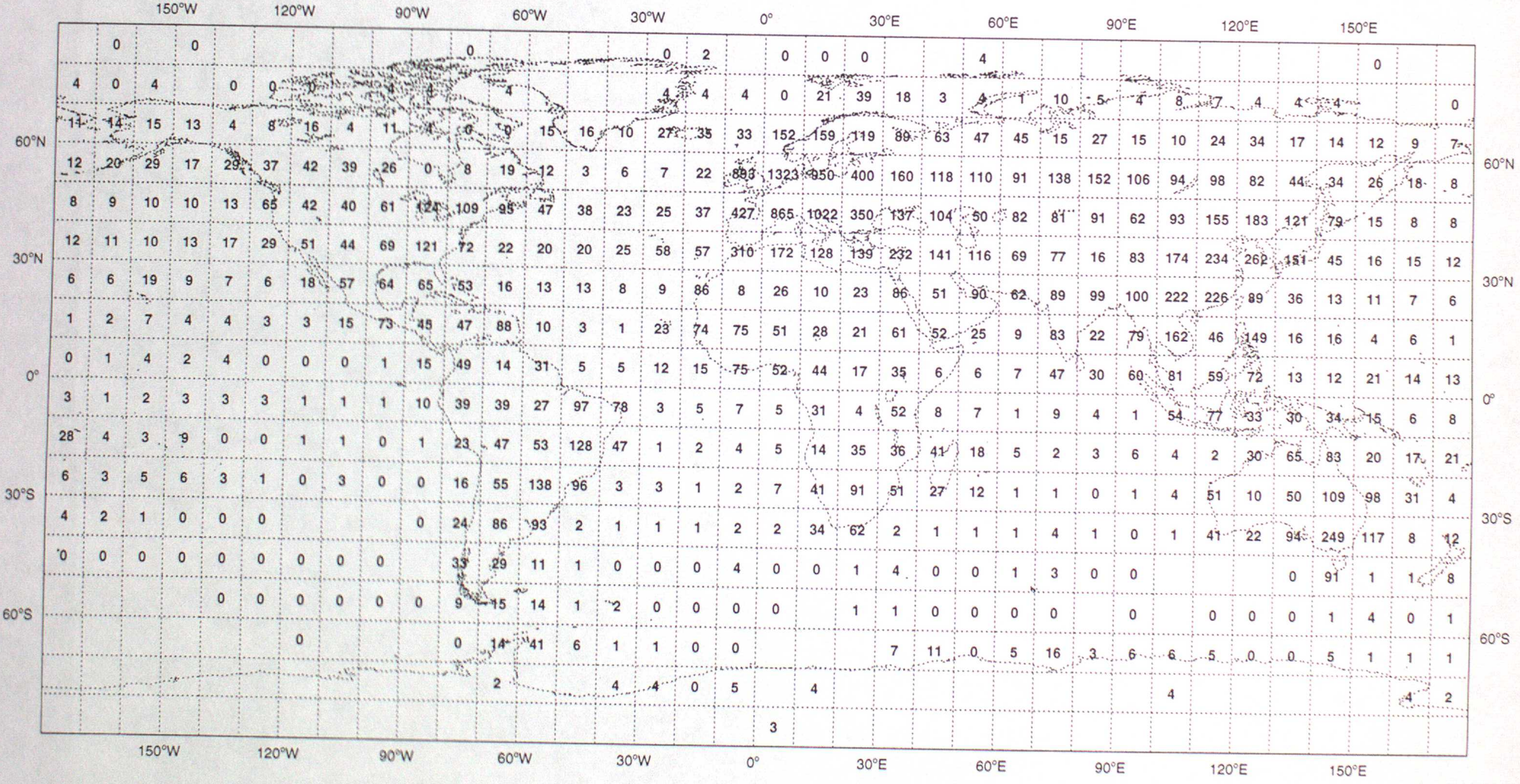

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH: February 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoys.

Standard of comparison :Background field from UKMO global model.

Position :Average latitude and longitude for period.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA : NOBS ≥ 20 , and one or more of the following:

1.|bias| ≥ 4 hPa (pressure),
≥ 5 m s^{-1} (wind speed),
≥ 30 degrees (direction).

2.SD ≥ 6 hPa (pressure),
≥ 80 degrees (direction).

3.PGE ≥ 25.

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
26510	84.0	-12.8	ALL	P	SUR	181	0	0	2.9	4.8	5.5
31953	-20.8	-40.7	ALL	P	SUR	636	13	2	2.8	8.5	9.0
33569	-43.1	-50.1	ALL	P	SUR	88	5	6	3.7	4.6	5.9
33570	-47.9	-51.2	ALL	P	SUR	84	2	2	3.5	6.5	7.3
33622	-28.4	-12.8	ALL	P	SUR	87	25	29	4.2	-2.8	5.1
33953	-45.8	32.2	ALL	P	SUR	93	27	29	4.1	3.3	5.3
44723	46.1	-9.9	ALL	P	SUR	227	68	30	4.7	-2.2	5.2
46551	30.3	-89.6	ALL	P	SUR	34	34	100			
48525	44.7	-63.6	ALL	P	SUR	27	0	0	0.7	-9.2	9.2
52643	44.7	-63.6	ALL	P	SUR	40	32	80	7.4	-2.8	7.9
71512	-58.3	33.8	ALL	P	SUR	181	155	86	3.4	0.5	3.5
WIND SPEED											
41594	19.2	-80.4	ALL	SPEED	SUR	288	98	34	7.8	5.7	9.7
46660	50.6	-137.9	ALL	SPEED	SUR	151	0	0	2.7	-5.7	6.3
WIND DIRECTION											
41523	30.2	-58.7	ALL	DIRN.	SUR	176	2	1	58.7	30.5	66.1
41594	19.2	-80.4	ALL	DIRN.	SUR	200	98	49	29.9	-49.6	57.9
46660	50.6	-137.9	ALL	DIRN.	SUR	44	0	0	44.0	80.2	91.5
62506	30.7	-27.4	ALL	DIRN.	SUR	94	0	0	15.1	34.8	37.9
62558	44.4	-21.9	ALL	DIRN.	SUR	131	0	0	13.6	31.3	34.2

Figure 2. DRIFTER mean daily count. FEBRUARY 2001

Main hours only

Global average number of observations in 24 hours = 9126

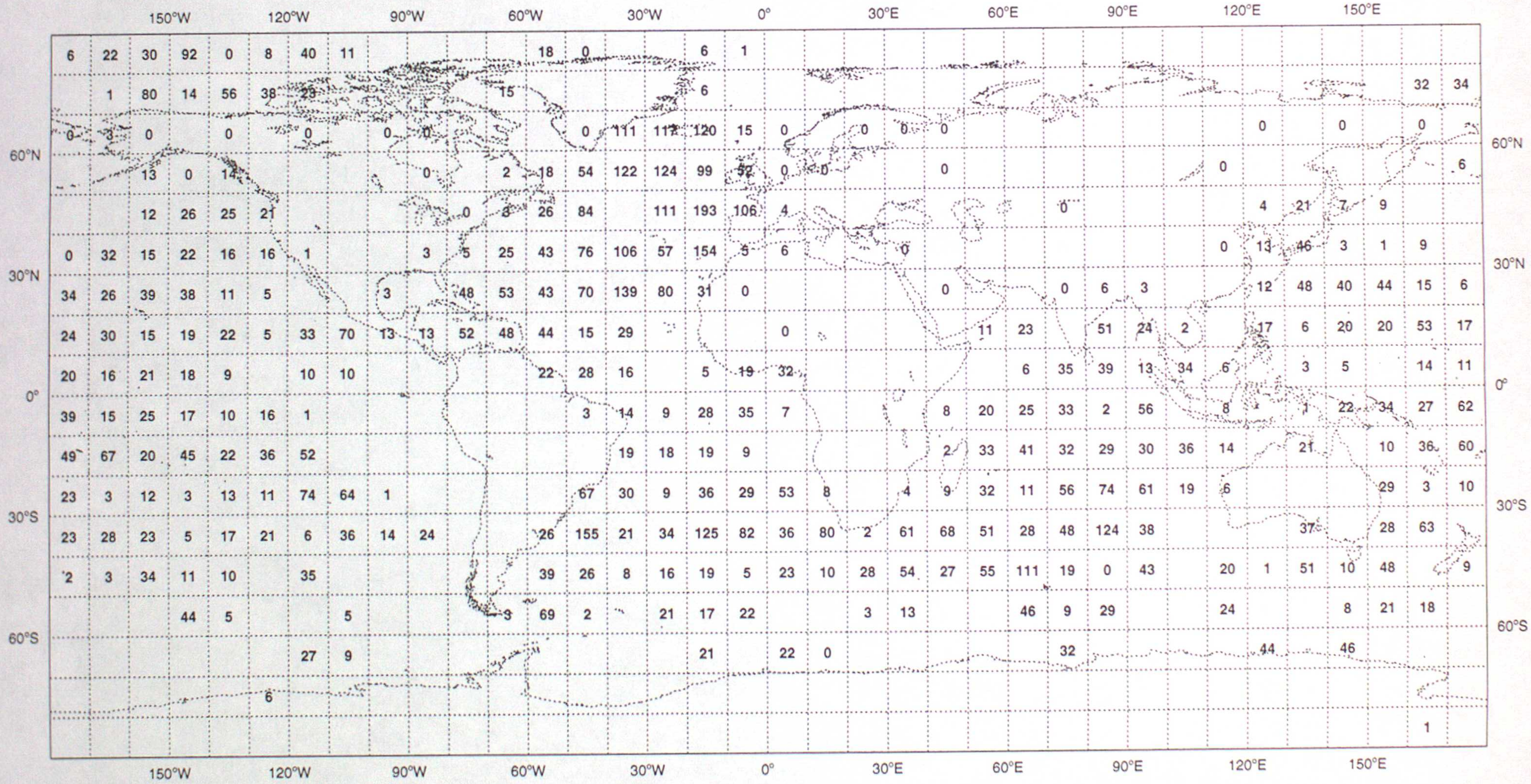

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
6 22 30 92 0 8 40 11 18 0 6 1
1 80 14 56 38 29 15 6 32 34
0 3 0 0 0 0 0 0 111 112 120 15 0 0 0 0 0 0 0
13 0 14 0 2 18 54 122 124 99 52 0 0 0 0 6
12 26 25 21 0 3 26 84 111 193 106 4 0 4 21 7 9
0 32 15 22 16 16 1 3 5 25 43 76 106 57 154 5 6 0 0 13 46 3 1 9
34 26 39 38 11 5 3 48 53 43 70 139 80 31 0 0 0 6 3 12 48 40 44 15 6
24 30 15 19 22 5 33 70 13 13 52 48 44 15 29 0 11 23 51 24 2 17 6 20 20 53 17
20 16 21 18 9 10 10 22 28 16 5 19 32 6 35 39 13 34 6 3 5 14 11
39 15 25 17 10 16 1 3 14 9 28 35 7 8 20 25 33 2 56 8 1 22 34 27 62
49 67 20 45 22 36 52 19 18 19 9 2 33 41 32 29 30 36 14 21 10 36 60
23 3 12 3 13 11 74 64 1 67 30 9 36 29 53 8 4 9 32 11 56 74 61 19 6 29 3 10
23 28 23 5 17 21 6 36 14 24 26 155 21 34 125 82 36 80 2 61 68 51 28 48 124 38 37 28 63
2 3 34 11 10 35 39 26 8 16 19 5 23 10 28 54 27 55 111 19 0 43 20 1 51 10 48 9
44 5 5 3 69 2 21 17 22 3 13 46 9 29 24 8 21 18
27 9 21 22 0 32 44 46
6
1

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH: February 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Surface pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged excluding those with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.|bias|	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
62056	32.8N	21.8E	625	S8	78	0	0	0	1.2	-5.4	5.5
62271	24.2N	23.3E	417	M	80	0	0	0	1.1	4.9	5.0
62790	12.1N	24.9E	674	MS	82	2	2	0	1.0	5.0	5.1
63602	3.1N	30.9E	1204	S	59	59	100	0			
63680	0.3N	32.6E	1144	S	32	0	0	3	1.7	-8.4	8.6
63801	4.9S	29.6E	882	S8	43	0	0	0	1.1	8.8	8.9
68016	19.3S	12.7E	16	MS	68	0	0	0	1.7	4.2	4.5
68106	23.6S	15.1E	407	S	61	17	28	0	1.1	0.7	1.3
68338	26.9S	24.6E	1234	S8	40	40	100	0			
68396	26.5S	31.3E	641	S8	47	1	2	0	1.1	4.8	4.9
68575	30.0S	30.0E	1175	M	51	51	100	100			

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
21931	70.8N	136.2E	24	M	31	0	0	35	2.9	-4.4	5.3
24329	66.3N	114.3E	236	MS	111	0	0	4	2.2	4.5	5.0
24671	63.9N	135.9E	402	MS	43	0	0	0	3.3	5.8	6.7
24688	63.3N	143.2E	741	MS	111	19	17	0	4.9	5.5	7.4
30554	54.5N	113.6E	995	MS	111	0	0	0	4.1	6.1	7.3
30669	53.1N	117.5E	708	MS	24	2	8	13	1.8	-5.2	5.5
30967	49.9N	115.8E	623	MS	79	0	0	0	1.7	-7.2	7.4
31123	57.8N	130.9E	255	MS	111	2	2	0	2.9	5.3	6.0
31137	56.3N	131.1E	850	MS	111	9	8	0	4.8	4.1	6.3
36982	41.9N	78.2E	3635	S7	96	3	3	3	1.2	-4.9	5.0
40726	36.8N	45.7E	1384	MS	100	2	2	4	1.8	4.7	5.0
40741	36.6N	61.2E	235	MS	103	0	0	0	1.3	-4.5	4.7
41254	23.1N	57.7E	1755	S8	78	78	100	0			
41314	17.7N	54.0E	467	MS	107	0	0	0	0.7	4.4	4.5
41396	16.0N	48.9E	700	MS	45	0	0	0	0.8	8.0	8.0
41466	13.7N	44.1E	1402	8	54	1	2	2	1.0	-5.3	5.4
41696	29.0N	66.6E	2015	S	53	15	28	0	1.0	-0.2	1.0
44212	50.0N	92.1E	940	MS	108	2	2	43	3.2	5.2	6.1
44239	48.8N	103.6E	1209	MS	108	0	0	0	1.2	-4.3	4.5
44313	47.6N	118.6E	689	MS	103	1	1	5	1.8	-5.4	5.7
44416	28.6N	81.6E	720	MS	53	0	0	2	1.2	4.3	4.5
47022	40.8N	128.2E	1200	S	86	2	2	0	0.9	4.1	4.2
51334	44.6N	82.9E	321	M	111	0	0	0	3.2	7.2	7.9
51379	44.0N	89.6E	794	M	111	0	0	0	2.5	6.3	6.8
51495	43.5N	91.6E	874	M	111	1	1	0	2.2	10.5	10.7
52602	38.8N	93.4E	2734	S	111	0	0	0	1.4	-6.5	6.6
52866	36.6N	101.8E	2262	S	111	0	0	0	1.0	-4.9	5.0
52955	35.6N	100.8E	3201	S	111	1	1	0	0.9	12.6	12.6
53083	44.6N	114.2E	1183	M	111	0	0	0	2.3	5.2	5.7
54587	39.1N	123.2E	-54	M	109	0	0	0	1.0	-4.7	4.8
56144	31.8N	98.6E	3184	S	111	0	0	0	1.4	-5.5	5.7
56146	31.6N	100.0E	339	S	111	111	100	0			
56385	29.5N	103.3E	3049	S	111	0	0	0	2.5	-4.6	5.2
56444	28.5N	98.9E	3488	S	111	77	69	64	0.7	13.5	13.5
56462	29.0N	101.5E	2994	S	111	0	0	0	1.8	8.8	9.0
59007	24.1N	105.1E	1251	M	111	0	0	0	3.1	4.0	5.1

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	MS	42	0	0	0	1.2	-8.7	8.8
82704	7.6S	72.7W	170	MS	81	0	0	0	1.7	-4.4	4.7
83214	10.3S	54.9W	285	MS	81	0	0	0	4.9	-4.7	6.8
83235	12.4S	46.4W	604	MS	83	1	1	0	1.0	6.3	6.4
83332	14.1S	46.4W	826	MS	82	13	16	0	1.0	13.3	13.3

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
83408	14.3S	43.8W	447	MS	62	0	0	0	0.9	10.9	10.9
83488	17.8S	42.9W	1097	MS	82	82	100	0			
83531	18.6S	46.5W	940	MS	80	0	0	0	1.2	-6.6	6.7
83579	19.6S	46.9W	1004	MS	84	0	0	1	1.0	-4.0	4.1
83587	19.9S	43.9W	850	MS	81	0	0	1	1.0	-7.7	7.8
83773	23.1S	48.9W	793	MS	82	0	0	0	0.8	-10.7	10.7
83836	25.5S	50.6W	837	MS	82	0	0	0	0.8	-5.6	5.7
83953	30.9S	55.5W	231	MS	82	1	1	0	1.3	-11.0	11.1
84377	3.8S	73.3W	125	MS	93	0	0	0	1.6	4.0	4.3
84455	6.5S	76.4W	281	MS	74	1	1	0	1.5	4.2	4.5
84472	7.1S	78.5W	2620	S	47	0	0	0	0.7	-6.7	6.7
84474	7.2S	76.7W	350	S	58	0	0	0	1.6	9.4	9.5
84686	13.6S	72.0W	3248	S	92	0	0	0	0.6	-4.9	4.9
84688	13.7S	73.4W	3444	S	40	1	3	0	1.0	-8.8	8.9
84782	18.1S	70.3W	468	MS	79	0	0	0	1.1	6.4	6.5
85264	18.5S	64.1W	1998	S	38	38	100	0			
85312	19.8S	63.9W	992	S	30	9	30	60	1.7	-12.6	12.7
85432	22.5S	68.9W	2320	S8	76	0	0	0	0.8	5.4	5.5
85836	43.6S	71.8W	277	M	37	0	0	0	2.1	4.0	4.5
88986	59.4S	27.3W	78	MS	286	286	100	22			

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71048	61.6N	125.8W	610	S	51	0	0	16	2.4	7.4	7.8
71075	58.2N	103.7W	492	MS	44	0	0	50	3.1	-5.9	6.7
71177	57.1N	61.5W	834	MS	109	0	0	2	1.7	-4.3	4.6
71179	54.7N	58.4W	683	MS	110	0	0	6	1.9	-4.1	4.5
71506	66.9N	136.3W	720	MS	109	0	0	0	1.6	-5.0	5.2
76118	30.4N	109.7W	1040	MS	32	2	6	0	0.7	-11.2	11.2
76243	28.7N	100.5W	250	MS	84	0	0	1	1.5	4.3	4.6
76658	19.2N	103.7W	494	MS	38	0	0	0	0.8	6.2	6.3
76743	18.0N	92.9W	10	MS	88	0	0	1	1.0	5.8	5.9
76903	14.9N	92.3W	118	MS	99	0	0	0	0.8	6.1	6.2
78482	18.2N	71.1W	3	M	74	0	0	58	2.1	-4.6	5.1
78627	15.3N	91.5W	1901	S	31	0	0	0	0.9	4.3	4.4

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
92010	6.1S	145.4E	1587	M	49	0	0	0	0.7	11.1	11.1
92036	2.4S	147.4E	1	8	218	218	100	0			
94130	14.8S	131.9E	120	MS	108	0	0	0	0.9	5.6	5.7
94384	24.1S	151.9E	34	MS	100	0	0	0	0.7	4.1	4.2
94868	37.8S	145.0E	35	MS	110	0	0	0	0.7	9.7	9.7
97378	10.7S	123.1E	1	MS	39	39	100	0			

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.8N	9.7E	671	MS	83	0	0	0	0.9	8.3	8.3
04416	72.6N	38.4W	3202	S	101	0	0	0	1.1	-4.1	4.2
06605	47.1N	7.1E	1599	S8	111	0	0	1	1.3	-4.8	5.0
06685	47.0N	9.1E	515	MS	111	0	0	10	1.5	6.7	6.9
10557	50.5N	11.1E	845	S8	333	333	100	0			

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
12140	54.4N	18.7E	2	MS	107	1	1	1	1.1	7.9	8.0
13269	44.3N	19.9E	176	MS	106	0	0	0	1.1	8.2	8.3
14554	44.9N	18.4E	140	S	51	5	10	0	1.3	-13.0	13.1
14650	43.8N	18.0E	972	S	55	54	98	0	0.0	0.3	0.3
16021	46.3N	11.8E	2004	MS	152	85	56	0	1.0	-0.3	1.0
16470	36.8N	12.0E	191	MS	62	0	0	0	0.9	-4.4	4.5
17092	39.8N	39.5E	1218	S8	111	1	1	1	1.2	8.5	8.6
17203	38.9N	40.5E	1177	S8	111	0	0	1	1.4	4.5	4.7

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89264	71.4S	68.9W	780	S	232	0	0	0	1.2	7.2	7.3
89266	72.2S	60.3W	91	S	251	236	94	0	8.1	-5.3	9.7
89272	74.8S	71.5W	1369	S	236	236	100	0			
89612	66.3S	110.8E	390	S	219	219	100	0			
89627	77.2S	123.5E	3084	S	189	188	99	33	0.0	-12.4	12.4
89637	69.9S	130.0E	2560	S	159	73	46	39	0.4	14.4	14.4
89661	73.1S	169.6E	200	S	68	0	0	0	1.6	6.7	6.9
89666	76.7S	163.0E	200	S	64	64	100	0			
89769	78.5S	168.4E	50	S	356	356	100	0			
89847	67.6S	146.0E	30	S	276	0	0	0	1.0	-9.4	9.5

TABLE 4A

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: February 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP ≥ 20

NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	23	0	57	1.1	0.6	23	0	57	0	6.3	0.6
AAH	772	0	39	1.6	0.1	768	0	39	0	8.0	1.1
AAL	5293	1	23	1.5	0.1	5266	0	24	0	8.2	0.5
AAR	1469	1	8	1.9	-0.5	1470	0	9	0	8.0	0.1
ACA	1796	1	3	1.7	0.1	1805	0	3	0	6.9	0.8
ACI	45	0	38	1.1	0.0	45	0	40	0	7.1	0.7
AEA	762	1	2	1.7	0.3	752	1	4	0	8.5	0.7
AEL	663	0	8	1.8	-0.7	662	0	9	0	7.2	0.5
AEY	344	0	2	2.0	1.4	345	0	3	0	7.5	0.5
AFL	431	1	3	1.9	0.6	435	0	3	0	7.9	0.5
AFR	1893	1	6	1.8	0.0	1904	0	6	0	7.9	0.8
AIH	302	1	3	1.6	-0.2	302	0	4	0	7.4	0.6
AJM	146	1	3	1.6	-0.2	145	0	4	0	9.6	0.2
ALM	82	1	6	1.8	-0.4	81	0	2	0	8.0	-0.3
AMM	119	0	4	1.9	0.8	120	1	75	0	8.8	1.0
AMT	752	1	42	2.3	0.6	755	0	42	0	8.3	0.9
AMX	254	2	6	2.0	0.2	253	1	6	0	9.3	0.9
ANA	1045	0	16	1.8	1.0	1053	0	17	0	8.1	0.9
ANZ	6068	0	34	1.6	0.2	6026	0	34	0	7.7	0.8
AOM	1225	1	11	1.7	0.6	1211	0	10	0	7.1	0.6
ARG	77	3	23	2.1	0.9	75	0	23	0	11.2	2.3
AUT	21	0	0	2.4	0.8	21	0	5	0	9.7	1.2
AVA	336	2	4	1.7	0.4	336	1	4	0	9.1	0.5
AVE	152	0	3	1.9	0.9	152	0	4	0	10.3	1.6
AVN	152	1	50	1.0	-0.1	149	0	50	0	8.2	0.6
AXF	37	0	24	1.6	0.4	37	0	24	0	7.9	1.2
AZA	660	0	64	1.9	-0.1	665	0	5	0	7.8	0.7
BAL	238	2	6	1.7	0.0	239	0	5	0	7.2	1.1
BAW	1033	1	11	1.8	0.1	1029	0	11	0	7.3	1.1
BBB	59	0	0	1.1	0.4	56	0	7	0	10.2	0.7
BLX	64	3	3	1.1	-0.5	65	0	2	0	7.3	0.9
BWA	299	1	100	2.5	1.6	301	0	9	0	10.6	0.8
CAL	222	0	7	1.9	0.8	226	0	8	0	8.5	0.6
CCA	239	1	23	2.9	0.3	263	1	100	0	11.8	-0.1
CDN	1589	0	16	1.7	0.0	1546	0	16	0	7.9	0.7
CES	477	1	7	2.0	0.4	491	1	9	0	9.7	-0.6
CFC	39	3	15	2.5	0.3	39	0	15	0	9.2	2.2
CFG	955	0	3	1.5	-0.6	954	0	4	0	8.7	0.8
CKS	20	0	15	2.7	0.4	20	0	10	0	8.3	2.3
CLX	423	1	6	1.5	-0.3	428	0	7	0	8.7	0.0
CMI	226	0	1	1.5	0.6	233	0	3	0	8.1	-0.1
CMM	449	2	23	1.7	-0.4	448	0	23	0	9.2	1.2
COA	1157	1	29	1.4	0.1	1167	0	30	0	9.4	1.3
CPA	77	0	8	1.1	0.7	76	0	9	0	5.6	1.7
CRL	972	1	7	2.1	0.9	980	0	6	0	7.5	1.1
CSN	112	0	7	1.7	0.5	115	1	10	0	8.2	0.5
CTB	54	0	4	1.4	0.2	54	0	4	0	6.5	0.8
CTM	32	0	28	1.3	-0.9	32	0	28	0	4.9	0.4
CUB	201	0	2	1.9	1.1	202	0	5	0	8.8	0.7
DAL	3128	0	37	1.5	0.2	3143	0	38	0	7.7	0.8
DBY	407	0	4	1.6	-0.2	407	1	4	0	6.7	0.5
DLH	1505	0	4	1.5	0.3	1499	0	5	0	6.0	0.6
EDW	69	0	0	1.7	0.0	70	0	0	0	6.1	1.4
EEZ	99	0	100	2.8	1.7	94	0	6	0	7.6	0.8
EIA	199	0	38	1.8	0.2	191	0	38	0	8.8	1.9
ELY	64	0	6	1.3	0.0	70	0	9	0	8.8	1.2
EVA	559	0	7	1.8	-0.2	565	0	7	0	7.2	0.0
EWW	132	0	3	1.4	0.0	133	0	3	0	6.8	2.4
FDX	1924	1	41	1.7	0.4	1928	0	41	0	8.2	0.9

		TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
FIN	361	0	5	1.7	0.1	362	0	7	0	8.6	0.8
FJI	644	2	45	1.6	0.4	626	0	43	0	7.7	1.1
FOM	368	1	32	1.1	0.1	368	0	32	0	7.5	0.3
FWQ	75	0	51	0.9	0.3	75	0	52	0	7.2	0.6
GAF	29	0	0	1.3	-0.4	29	0	3	0	6.8	0.6
GCO	176	0	11	1.4	0.2	177	0	100	0	11.9	2.3
GHA	89	0	2	1.3	-0.6	88	0	2	0	9.7	0.2
GIA	23	0	4	2.1	1.6	22	0	5	0	5.4	0.1
GRL	49	0	4	1.4	0.2	49	0	8	0	7.4	0.6
GTI	187	0	3	1.8	-0.3	190	1	6	0	9.3	0.8
HAL	3679	0	35	1.6	0.4	3660	0	36	0	9.6	1.5
HLF	127	1	5	1.5	-0.5	127	0	5	0	8.9	0.4
HRH	245	0	64	1.1	0.1	245	0	65	0	9.4	1.7
HVN	67	0	1	1.1	0.1	67	0	1	0	6.3	0.0
IBE	2634	1	5	1.7	0.3	2608	0	6	0	8.4	0.9
ICE	1052	1	6	1.9	0.2	968	0	5	0	8.6	0.7
IWD	96	0	7	1.5	-0.7	96	0	8	0	10.4	1.6
JAA	54	0	11	2.0	1.4	53	0	9	0	7.1	4.3
JAL	5708	0	5	1.8	0.2	5716	0	5	0	7.4	0.8
JAZ	890	1	3	2.0	1.2	900	1	4	0	7.9	0.9
JKK	269	1	6	1.6	0.1	243	0	7	0	8.4	1.2
JMC	152	0	3	1.6	1.2	146	1	3	0	6.4	0.7
KAL	3074	1	10	1.8	0.0	3072	0	10	0	8.3	0.8
KLM	2083	1	9	1.6	0.3	2092	0	9	0	7.1	0.8
LAN	99	6	16	2.8	1.5	102	0	81	0	11.8	0.5
LAP	50	6	14	1.7	1.0	49	0	8	0	6.0	2.0
LDA	118	2	3	1.2	-0.3	117	1	3	0	6.3	1.0
LDI	846	0	4	1.5	-0.5	848	0	5	0	8.0	0.7
LIB	486	1	4	1.7	0.9	488	1	6	0	9.9	0.5
LOT	245	1	9	1.6	-1.0	244	0	8	0	6.6	0.0
LPR	31	6	13	2.4	0.6	31	0	13	0	10.2	-0.1
LTU	377	2	4	1.7	-0.1	360	1	4	0	6.9	1.0
MAS	461	0	7	1.8	0.2	468	0	100	0	8.4	0.2
MDA	21	0	0	1.0	-0.1	21	0	0	0	8.9	1.9
MON	76	0	0	1.7	0.1	78	0	0	0	5.1	0.9
MPD	191	0	1	1.3	-0.1	188	1	3	0	7.8	0.6
MPH	746	0	4	1.8	-0.7	755	0	4	0	7.8	0.4
NCA	609	0	4	1.8	0.0	602	0	4	0	7.4	0.3
NVR	34	0	0	1.4	-0.1	34	0	0	0	5.0	-0.1
NWA	10209	1	12	1.7	0.5	10187	0	12	0	8.0	0.5
NZL	2534	0	13	1.1	0.2	2534	0	13	0	6.5	0.9
OAE	96	0	41	1.4	0.2	96	0	45	0	9.1	3.5
PAC	438	1	34	1.6	0.2	438	0	34	0	8.3	0.8
PAL	1338	0	10	1.7	0.0	1280	0	11	0	8.9	1.0
PAO	691	1	56	1.3	0.1	672	0	56	0	8.4	0.8
PUA	21	10	43	2.0	0.3	21	0	43	0	17.1	0.1
QFA	4472	0	58	1.4	0.5	4438	0	58	0	7.4	0.6
RAF	37	0	5	1.9	0.8	37	0	5	0	6.5	1.1
RAM	51	0	14	2.7	-0.6	51	0	14	0	11.3	0.7
RCH	188	2	14	2.2	0.3	165	1	47	0	12.4	1.2
RJA	22	5	14	1.6	0.0	21	0	10	0	5.9	2.4
RKA	85	0	0	1.5	-0.5	84	0	2	0	9.0	0.5
RRR	84	0	12	2.6	-0.1	82	1	15	0	9.8	2.5
RYN	238	1	44	1.8	1.0	236	0	44	0	8.4	-0.2
RZO	176	1	5	1.7	-0.2	177	1	100	0	7.6	0.4
SAA	391	0	5	1.9	-0.6	388	1	5	0	8.8	-0.5
SIA	472	0	1	1.5	0.3	476	0	1	0	6.2	0.4
SLR	240	1	5	1.3	0.0	236	0	4	0	6.7	1.1
SVA	39	3	13	1.2	0.2	41	0	7	0	7.8	2.6

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
SWR	33	9	15	2.4	-0.5	34	0	18	0	17.3	2.4
TAM	36	11	25	2.5	1.4	36	0	28	0	12.5	2.1
TAP	505	1	4	1.6	-0.5	504	0	5	0	9.4	1.2
TBA	37	8	35	1.5	0.7	37	0	41	0	16.3	1.1
THA	303	1	5	1.5	-0.4	306	2	100	0	16.3	0.0
THT	36	0	14	2.5	0.7	34	0	15	0	11.5	-1.7
TSC	62	0	11	2.2	0.3	70	0	14	0	7.6	1.1
TWA	1398	0	24	1.6	0.2	1375	0	24	0	7.2	0.7
UAL	137345	0	100	1.3	-0.2	137234	0	100	0	5.3	0.7
UPS	1417	0	44	1.9	0.3	1411	0	43	0	7.0	0.9
USA	197	2	4	1.3	-0.3	168	0	4	0	7.0	1.3
VIR	577	0	3	1.6	0.0	582	0	5	0	8.2	0.7
VKG	101	2	3	1.7	0.0	104	0	1	0	5.6	1.0
VPB	36	0	0	1.8	0.6	37	0	0	0	5.9	1.8
VRG	279	4	25	2.2	1.2	286	1	100	0	11.7	1.2
VVR	54	0	39	2.5	0.9	55	0	44	0	8.4	-1.2
WOA	199	0	5	1.8	0.3	219	0	9	0	8.6	0.7
YSS	35	0	0	1.7	1.3	35	0	3	0	12.4	0.8
AR	3477	11	100	3.3	2.8	3472	0	13	0	10.6	2.6
AU	51678	0	14	1.2	0.6	51679	0	14	0	5.4	0.6
EU	110629	0	27	1.3	0.3	110629	0	25	0	5.1	0.5
KL	6209	0	8	1.4	0.9	6195	0	8	0	5.3	0.9
LH	2247	0	9	1.6	1.0	2217	0	9	0	5.2	1.2
MK	3194	0	6	1.6	1.2	3179	0	29	0	7.2	1.3
SA	2746	0	13	1.5	1.0	2746	0	12	0	7.4	0.6
SV	2459	0	100	2.8	2.7	2428	0	4	0	6.3	0.6
WA	369	9	17	1.8	0.6	363	7	100	0	11.9	-0.6
XX	4427	2	9	1.5	0.2	4390	0	10	0	10.1	1.1
N	789	1	21	2.2	0.7	803	0	21	0	8.6	0.4
US ACARS	794494	1	56	1.3	0.3	794491	0	55	0	5.5	0.9

TABLE 4B

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: February 2001

Monitoring procedures

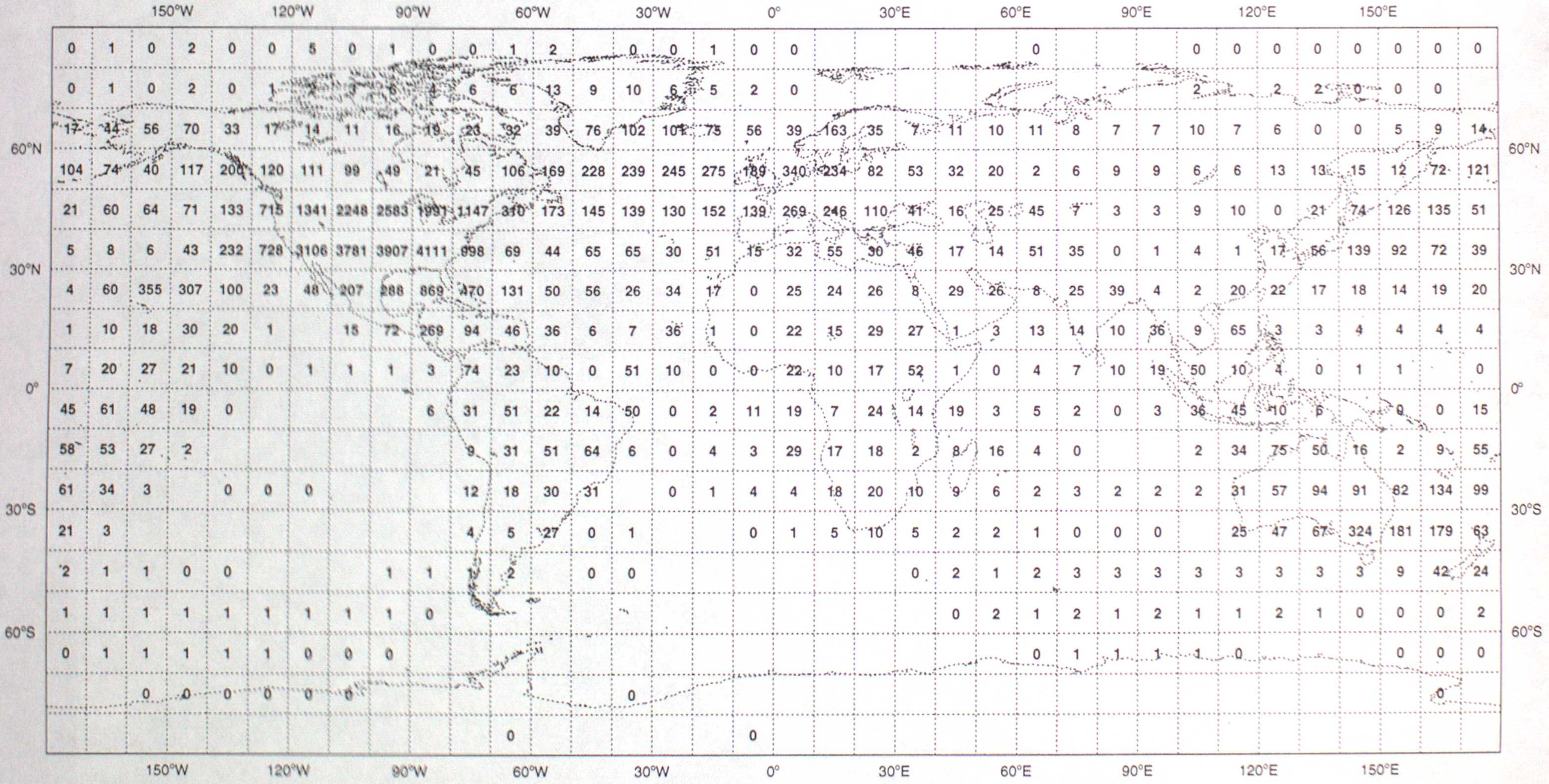
Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:All hours combined.
Level(s) monitored		:1000.0 – 300.1 hPa
Elements monitored		:TEMP in °C ; WIND in m s^{-1}
Parameters monitored	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.
GROSS ERROR LIMITS		:10.0 °C ; 60 m s^{-1} Vector Wind
SELECTION CRITERIA		:N REP $\geq$ 20

NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	359	1	17	1.4	0.0	349	1	18	0	7.9	-0.1
AAR	44	2	48	1.8	-0.4	41	0	51	0	14.6	2.1
ACI	27	0	56	1.4	0.2	27	0	56	0	7.6	0.8
AEY	23	0	4	2.7	1.0	23	0	0	0	6.0	0.1
AFR	83	1	12	2.2	-0.2	84	0	8	0	6.5	0.4
ANZ	131	4	21	1.5	0.2	131	0	19	0	6.1	0.5
AOM	114	2	5	1.7	1.3	114	0	4	0	7.6	0.8
ARG	23	17	35	3.7	0.2	24	0	17	0	8.0	0.2
ASY	32	6	50	1.1	-0.2	32	0	47	0	7.2	1.0
AXF	64	0	34	1.1	0.5	64	0	34	0	4.7	-0.2
BAF	21	0	0	1.2	0.2	23	0	4	0	9.4	-0.7
CFC	100	0	7	1.9	0.8	98	0	8	0	8.9	2.0
CFG	32	0	13	1.5	-1.1	31	0	13	0	6.8	0.0
CLX	29	0	0	1.6	-0.9	29	0	0	0	7.0	-0.7
CMI	41	0	5	2.3	-0.9	38	0	8	0	12.2	5.6
COA	97	1	32	1.6	0.3	95	0	32	0	9.2	0.5
CRL	40	0	5	1.3	0.4	40	0	5	0	5.4	0.3
CUB	52	0	4	1.8	0.7	50	0	2	0	5.8	1.6
DAF	24	0	4	1.8	-0.4	23	0	4	0	5.7	2.4
DAL	283	0	47	1.6	0.5	287	0	46	0	5.6	0.7
DHL	53	0	64	6.4	-6.3	54	0	9	0	13.3	3.8
DLH	234	0	13	1.6	0.3	232	0	13	0	10.1	0.6
EIA	23	0	43	2.0	-0.3	23	0	43	0	6.6	-0.1
EVA	35	0	31	0.7	-0.4	36	0	33	0	9.1	1.7
EWW	82	0	5	1.7	0.5	81	1	7	0	10.4	2.2
FDX	412	1	23	1.4	0.6	417	1	24	0	8.6	0.7
GAF	62	0	3	1.8	0.0	63	0	0	0	6.2	-0.3
GCO	217	0	5	1.3	0.4	223	0	100	0	15.9	3.7
GHA	52	4	6	1.6	-0.2	52	0	2	0	10.9	3.6
GTI	38	0	8	2.1	-0.4	40	0	5	0	7.2	2.2
HAL	195	3	45	1.6	0.1	195	1	45	0	9.1	0.0
HLA	20	0	5	1.7	-0.8	20	0	10	0	10.4	0.3
IBE	105	0	19	1.6	-0.1	105	1	25	0	8.6	1.9
ICE	68	0	1	1.4	-0.8	68	0	1	0	5.7	0.9
JAA	28	0	0	1.6	0.5	28	0	0	0	6.6	1.9
JAL	203	0	8	1.7	0.3	203	0	8	0	8.1	1.2
JAZ	246	1	3	1.7	1.1	247	0	3	0	7.3	0.3
JMC	26	0	0	1.8	1.6	22	0	0	0	6.4	0.3
KAL	76	4	20	1.2	-0.2	75	0	20	0	6.4	-0.1
KIW	79	6	37	3.1	2.1	75	0	35	0	10.6	0.0
KLM	95	1	4	1.6	0.6	96	0	4	0	7.1	1.3
LAN	111	10	16	3.3	0.3	126	0	73	0	8.7	3.6
LDI	23	4	4	1.6	-1.3	23	0	0	0	5.2	-0.2
LIB	34	6	9	1.5	1.0	34	0	3	0	5.6	-0.3
LTU	23	0	0	0.8	-0.4	23	0	4	0	11.2	-0.5
MAS	31	6	42	0.9	0.1	30	0	100	0	10.5	0.9
MPH	54	0	4	1.3	0.1	54	0	6	0	8.6	-1.0
NCA	78	0	0	1.6	-0.7	78	1	3	0	6.6	1.0
NWA	566	2	17	1.6	0.8	567	0	18	0	7.8	1.1
NZL	6640	0	54	1.5	0.1	6640	0	54	0	5.0	0.9
PAC	32	0	3	1.1	0.1	33	0	18	0	14.5	-1.1
PAL	32	6	9	1.0	-0.4	32	0	3	0	6.4	-1.2
QFA	200	7	52	1.5	0.4	206	0	50	0	8.2	0.4
RCH	139	21	25	2.5	-0.1	138	0	38	0	11.5	0.9
RRR	94	1	11	3.1	1.2	95	1	13	0	11.5	-1.4
SAA	79	0	1	1.2	-1.0	78	0	4	0	6.7	-0.1
SIA	43	0	9	1.3	0.1	44	0	9	0	5.8	1.4
SKI	83	10	23	4.3	-2.2	54	2	13	0	10.9	1.0
SWR	46	0	11	1.3	0.1	47	0	19	0	15.8	2.1

		TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
THA	26	0	4	1.0	0.4	26	0	100	0	10.6	-0.4
TWA	35	0	20	1.1	0.1	36	0	19	0	6.0	-0.2
UAL	208980	0	100	1.2	-0.1	208671	0	100	0	4.7	0.3
UPS	281	1	30	1.3	0.2	281	0	31	0	7.7	0.6
VHJ	43	0	0	1.8	0.9	44	0	0	0	8.3	1.1
VTA	25	8	8	1.4	-1.1	27	0	4	0	5.6	-0.2
VVP	56	13	50	3.2	-1.0	55	0	47	0	13.3	-0.1
VVR	27	4	41	3.1	-1.7	27	0	30	0	8.0	-0.2
AR	3414	7	100	2.2	1.4	3391	0	56	0	4.9	0.8
AU	91764	0	66	1.6	-0.2	91766	0	66	0	4.3	0.4
EU	455773	0	72	1.1	0.1	455158	0	72	0	4.1	0.0
KL	4656	0	56	1.2	0.5	4629	0	56	0	4.9	0.3
LH	679	0	60	1.1	0.1	670	0	59	0	4.0	0.9
MK	2566	0	52	1.3	0.5	2549	0	68	0	4.8	0.6
SA	2110	0	58	1.5	0.4	2110	0	58	0	4.8	0.4
SV	1880	0	100	3.1	2.8	1865	0	46	0	5.3	1.3
WA	72	13	15	1.1	0.5	71	10	100	0	14.9	-0.7
XX	1190	4	11	1.7	0.2	1186	1	14	0	13.7	1.7
US ACARS	1099142	0	71	1.3	0.3	1096888	0	71	0	4.8	0.2

Figure 3a. AIRCRAFT 300 - 150 hPa mean daily count. FEBRUARY 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Global average number of observations in 24 hours = 43417



0	1	0	2	0	0	5	0	1	0	0	1	2		0	0	1	0	0						0				0	0	0	0	0	0	0	0
0	1	0	2	0	1	2	3	6	4	6	6	13	9	10	6	5	2	0										2		2	2	0	0	0	
17	44	56	70	33	17	14	11	16	19	23	32	39	76	102	101	75	56	39	163	35	7	11	10	11	8	7	7	10	7	6	0	0	5	9	14
104	74	40	117	200	120	111	99	49	21	45	106	169	228	239	245	275	189	340	234	82	53	32	20	2	6	9	9	6	6	13	13	15	12	72	121
21	60	64	71	133	715	1341	2248	2583	1991	1147	310	173	145	139	130	152	139	269	246	110	41	16	25	45	7	3	3	9	10	0	21	74	126	135	51
5	8	6	43	232	728	3106	3781	3907	4111	898	69	44	65	65	30	51	15	32	55	30	46	17	14	51	35	0	1	4	1	17	56	139	92	72	39
4	60	355	307	100	23	48	207	288	869	470	131	50	56	26	34	17	0	25	24	26	8	29	26	8	25	39	4	2	20	22	17	18	14	19	20
1	10	18	30	20	1		15	72	269	94	46	36	6	7	36	1	0	22	15	29	27	1	3	13	14	10	36	9	65	3	3	4	4	4	4
7	20	27	21	10	0	1	1	1	3	74	23	10	0	51	10	0	0	22	10	17	52	1	0	4	7	10	19	50	10	4	0	1	1		0
45	61	48	19	0					6	31	51	22	14	50	0	2	11	19	7	24	14	19	3	5	2	0	3	36	45	10	6		0	0	15
58	53	27	2							9	31	51	64	6	0	4	3	29	17	18	2	8	16	4	0			2	34	75	50	16	2	9	55
61	34	3		0	0	0				12	18	30	31		0	1	4	4	18	20	10	9	6	2	3	2	2	2	31	57	94	91	82	134	99
21	3									4	5	27	0	1			0	1	5	10	5	2	2	1	0	0	0		25	47	67	324	181	179	63
2	1	1	0	0				1	1	1	2		0	0							0	2	1	2	3	3	3	3	3	3	3	3	9	42	24
1	1	1	1	1	1	1	1	1	0													0	2	1	2	1	2	1	1	2	1	0	0	0	2
0	1	1	1	1	1	0	0	0																0	1	1	1	1	0				0	0	0
		0	0	0	0	0	0							0																				0	
											0						0																		

Figure 3b. AIRCRAFT 1000 - 301 hPa mean daily count. FEBRUARY 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Global average number of observations in 24 hours = 67213

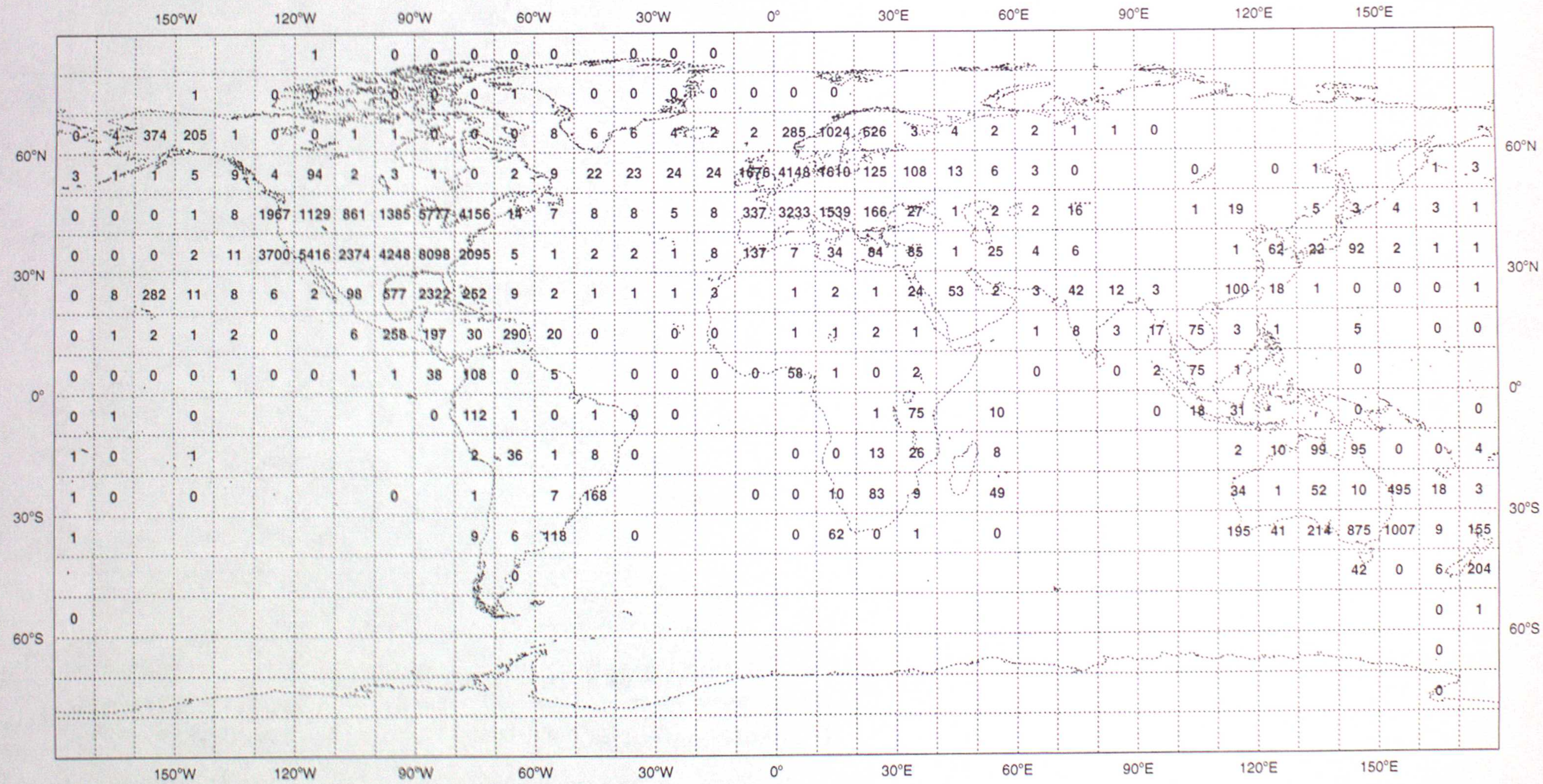

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
1 0 0 0 0 0 0 0 0
1 0 0 0 0 0 1 0 0 0 0 0 0 0
0 4 374 205 1 0 0 1 1 0 0 0 8 6 6 4 2 2 285 1024 626 3 4 2 2 1 1 0
3 1 1 5 9 4 94 2 3 1 0 2 9 22 23 24 24 1676 4148 1610 125 108 13 6 3 0 0 0 1 1 3
0 0 0 1 8 1967 1129 861 1385 5777 4156 14 7 8 8 5 8 337 3233 1539 166 27 1 2 2 16 1 19 5 3 4 3 1
0 0 0 2 11 3700 5416 2374 4248 8098 2095 5 1 2 2 1 8 137 7 34 84 85 1 25 4 6 1 62 22 92 2 1 1
0 8 282 11 8 6 2 98 577 2322 252 9 2 1 1 1 3 1 2 1 24 53 2 3 42 12 3 100 18 1 0 0 0 1
0 1 2 1 2 0 6 258 197 30 290 20 0 0 0 1 1 2 1 1 8 3 17 75 3 1 5 0 0
0 0 0 0 1 0 0 1 1 38 108 0 5 0 0 0 0 58 1 0 2 0 0 2 75 1 0
0 1 0 0 112 1 0 1 0 0 1 75 10 0 18 31 0 0
1 0 1 2 36 1 8 0 0 0 13 26 8 2 10 99 95 0 0 4
1 0 0 0 1 7 168 0 0 10 83 9 49 34 1 52 10 495 18 3
1 9 6 118 0 0 62 0 1 0 195 41 214 875 1007 9 155
0 42 0 6 204
0 0 1
0
0

Figure 4a. AIRCRAFT 300 - 150 hPa mean winds. FEBRUARY 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

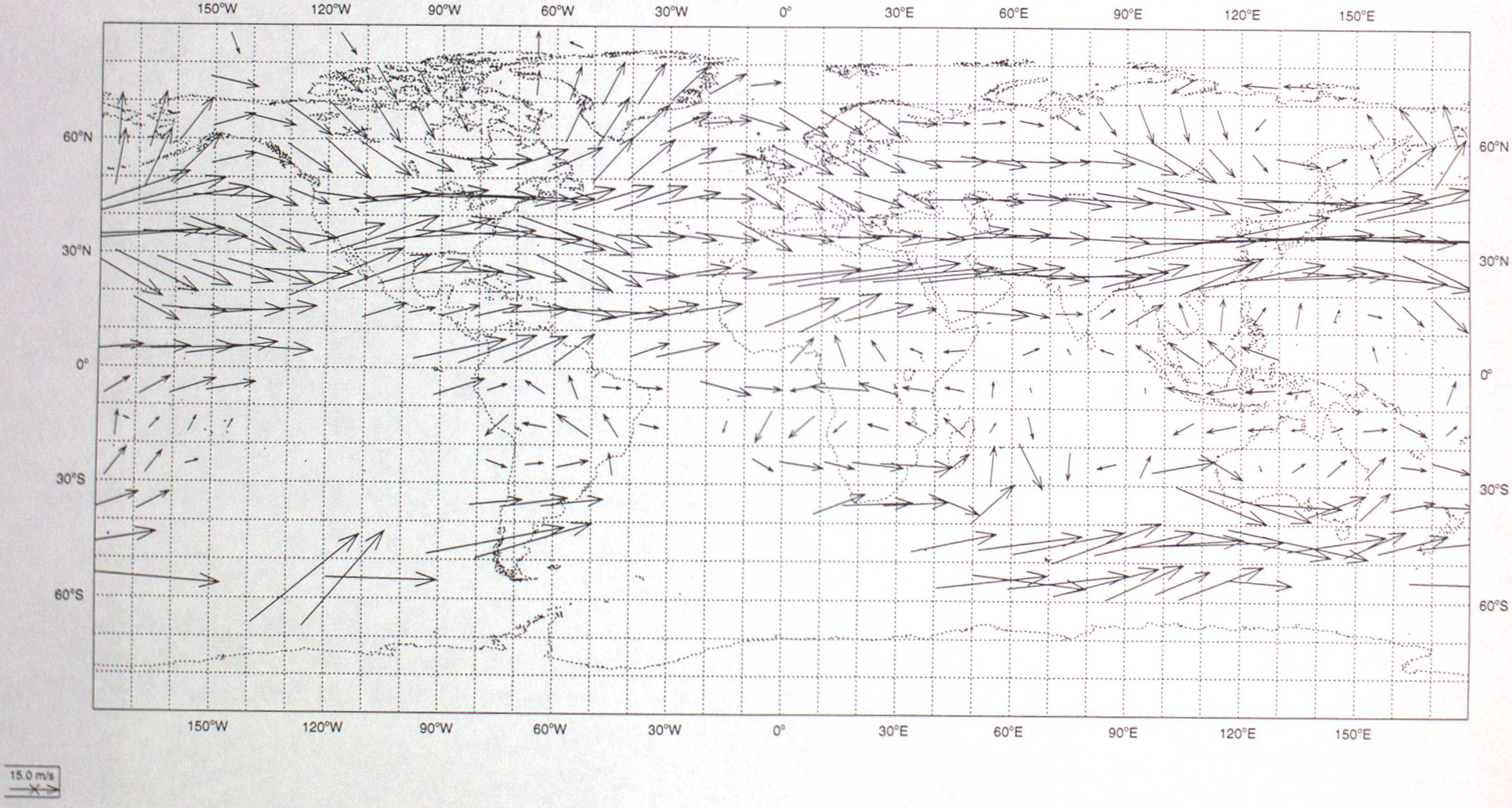

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 4b. AIRCRAFT 1000 - 301 hPa mean winds. FEBRUARY 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

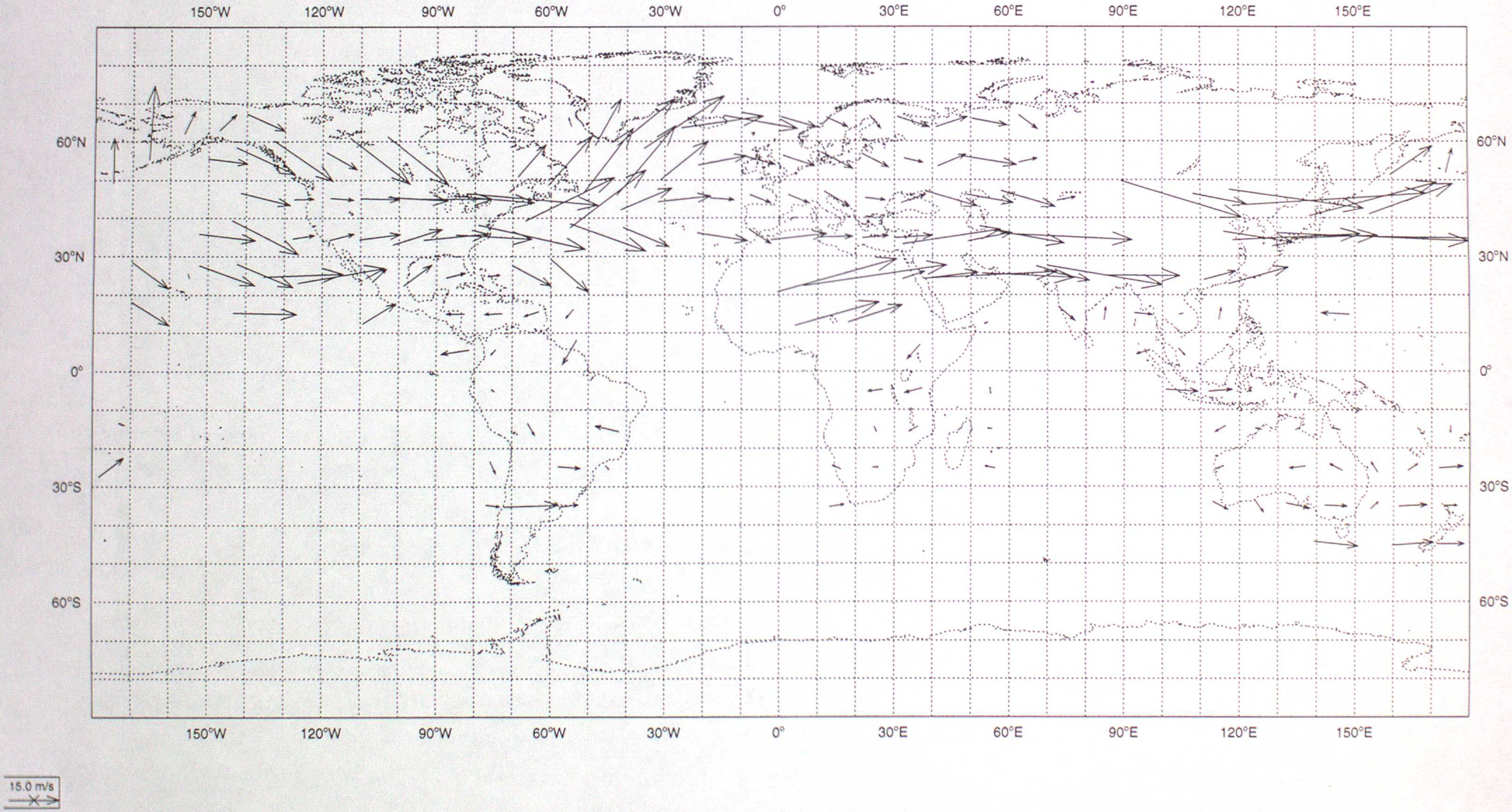

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 5a. AIRCRAFT 300 - 150 hPa mean O-B winds. FEBRUARY 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

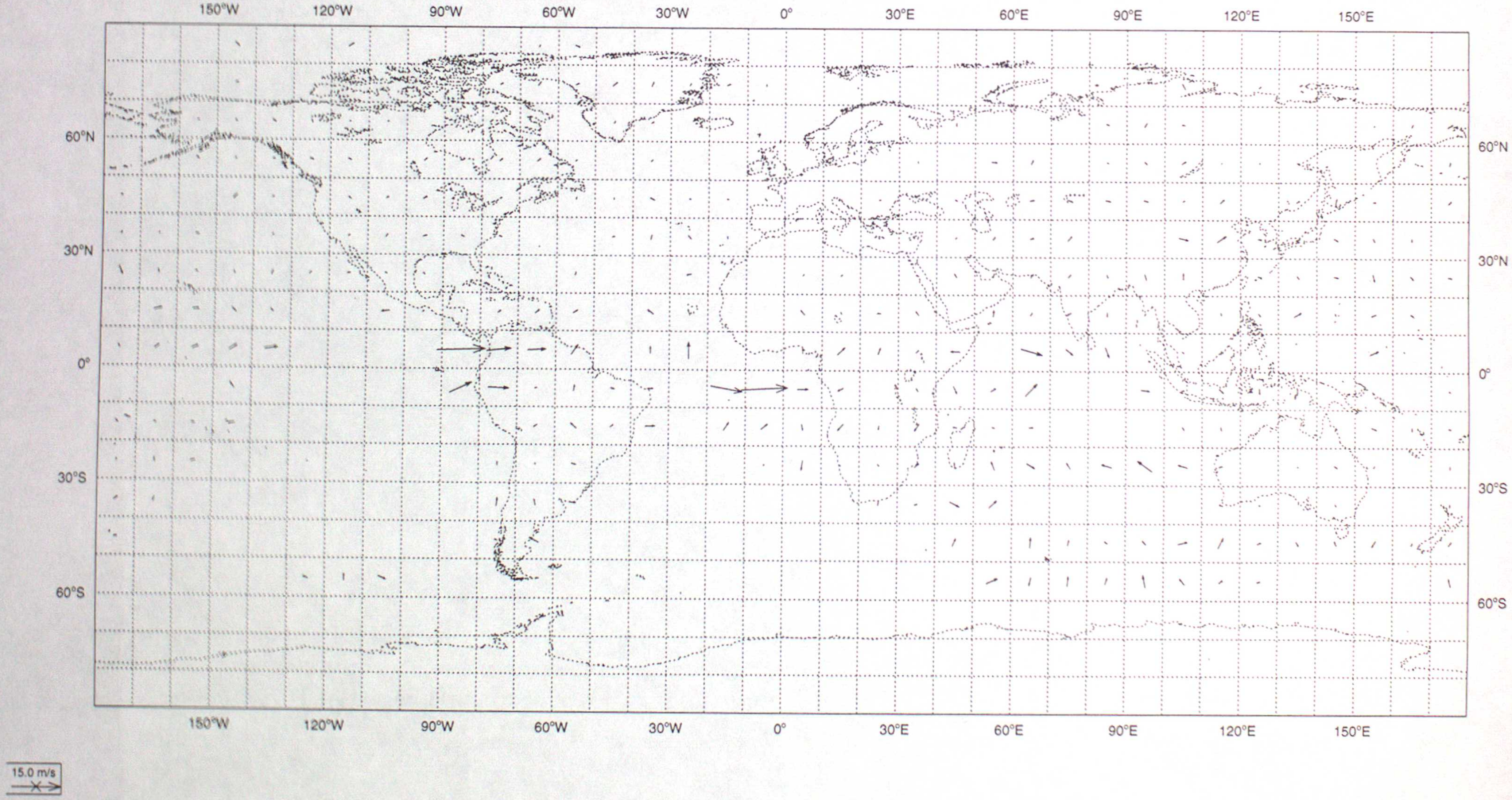

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 5b. AIRCRAFT 1000 - 301 hPa mean O-B winds. FEBRUARY 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

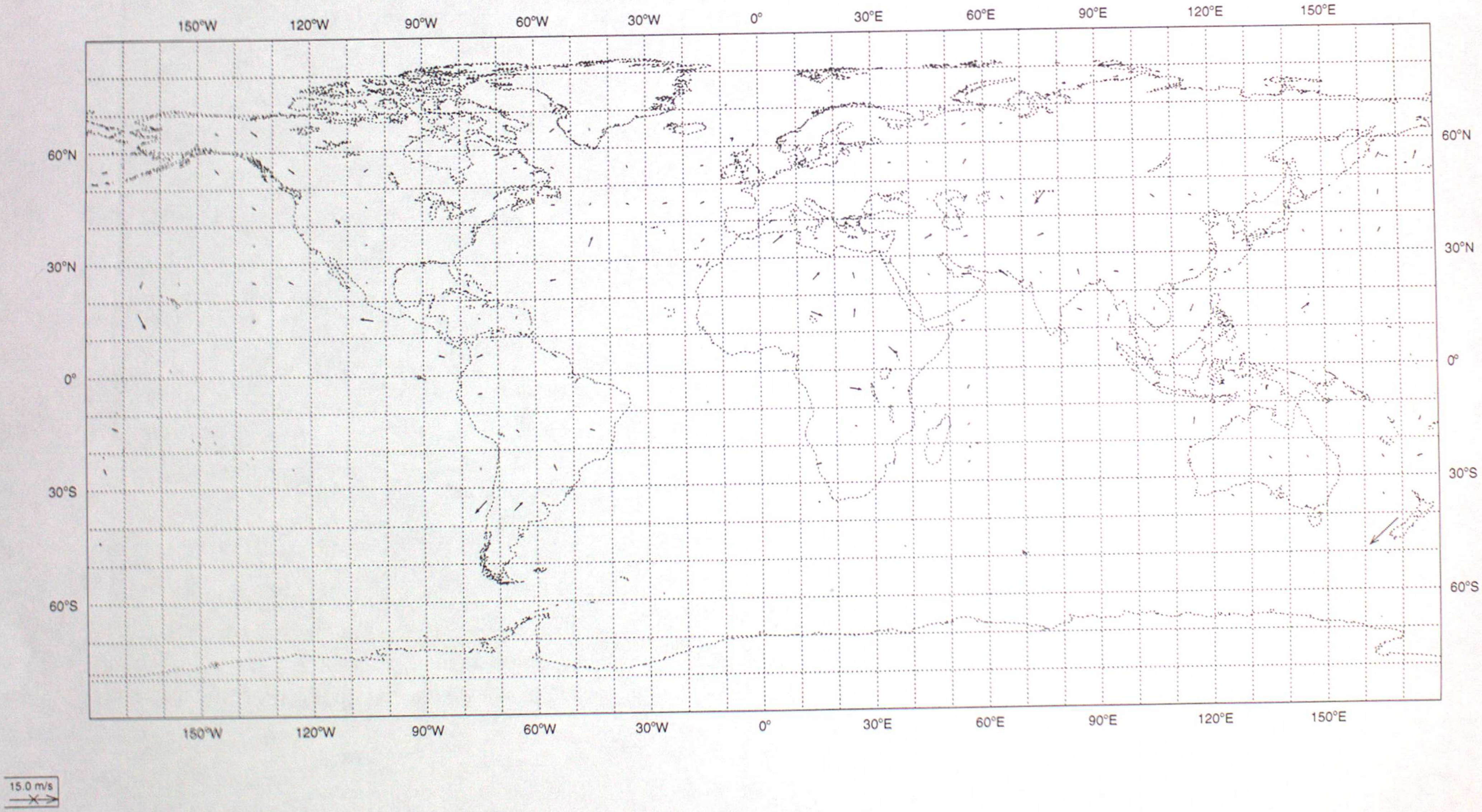

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 6a. AIRCRAFT 300 - 150 hPa mean O-B speeds (ms-1). FEBRUARY 2001

Observations with O-B vector difference greater than 60 ms-1 excluded

Values are printed where greater than 30 obs are present

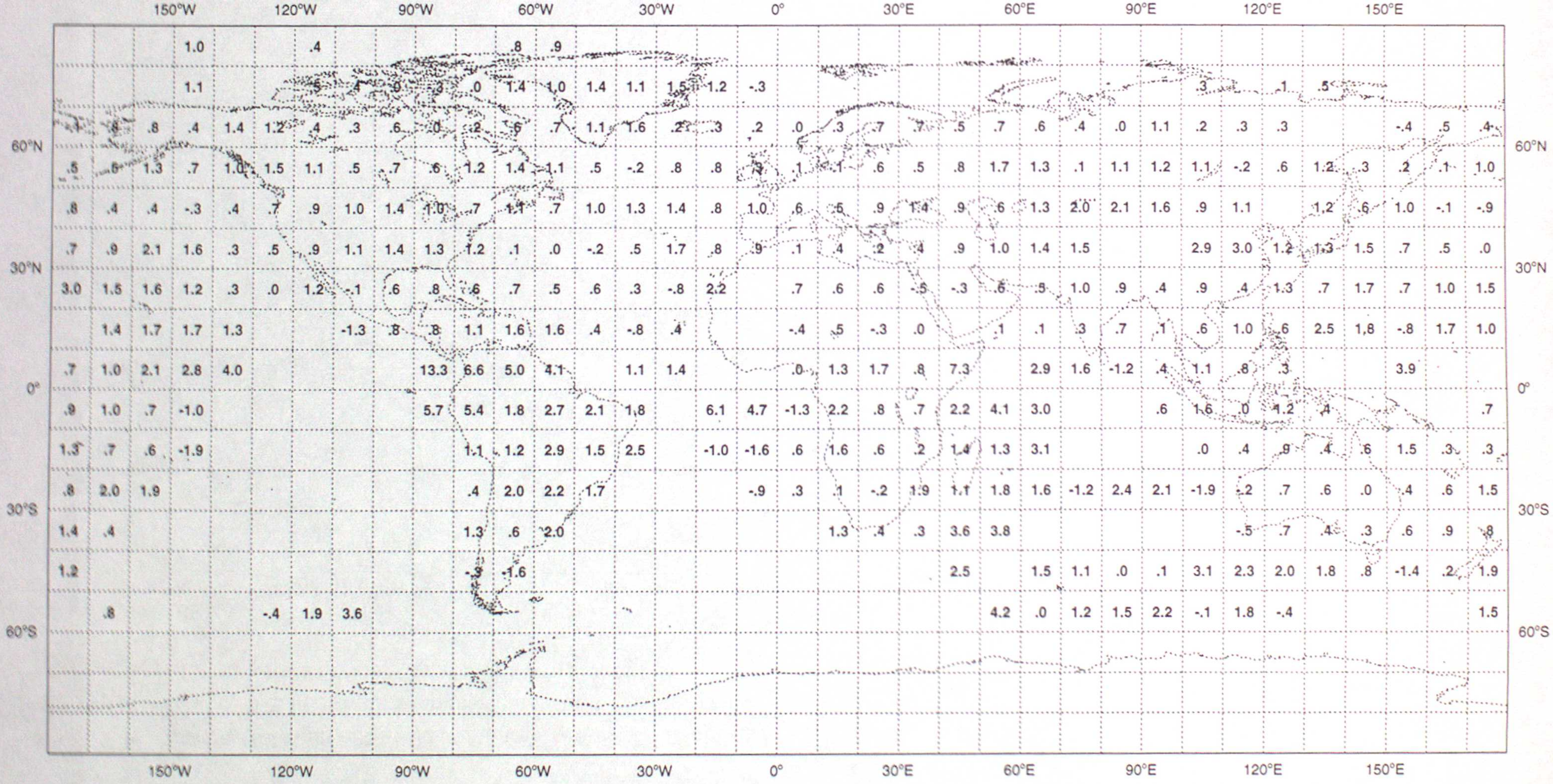

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S
1.0 .4 .8 .9
1.1 .5 .4 .0 .3 .0 1.4 1.0 1.4 1.1 1.5 1.2 -.3 .3 .1 .5
.4 .8 .8 .4 1.4 1.2 .4 .3 .6 .0 .2 .6 .7 1.1 1.6 .2 .3 .2 .0 .3 .7 .7 .5 .7 .6 .4 .0 1.1 .2 .3 .3 -.4 .5 .4
.5 .6 1.3 .7 1.0 1.5 1.1 .5 .7 .6 1.2 1.4 1.1 .5 -.2 .8 .8 .3 .1 .1 .6 .5 .8 1.7 1.3 .1 1.1 1.2 1.1 -.2 .6 1.2 .3 .2 .1 1.0
.8 .4 .4 -.3 .4 .7 .9 1.0 1.4 1.0 .7 1.1 .7 1.0 1.3 1.4 .8 1.0 .6 .5 .9 1.4 .9 .6 1.3 2.0 2.1 1.6 .9 1.1 1.2 .6 1.0 -.1 -.9
.7 .9 2.1 1.6 .3 .5 .9 1.1 1.4 1.3 1.2 .1 .0 -.2 .5 1.7 .8 .9 .1 .4 .2 .4 .9 1.0 1.4 1.5 2.9 3.0 1.2 1.3 1.5 .7 .5 .0
3.0 1.5 1.6 1.2 .3 .0 1.2 -.1 .6 .8 .6 .7 .5 .6 .3 -.8 2.2 .7 .6 .6 -.5 -.3 .6 .5 1.0 .9 .4 .9 .4 1.3 .7 1.7 .7 1.0 1.5
1.4 1.7 1.7 1.3 -1.3 .8 .8 1.1 1.6 1.6 .4 -.8 .4 -.4 .5 -.3 .0 .1 .1 .3 .7 .1 .6 1.0 .6 2.5 1.8 -.8 1.7 1.0
.7 1.0 2.1 2.8 4.0 13.3 6.6 5.0 4.1 1.1 1.4 .0 1.3 1.7 .8 7.3 2.9 1.6 -1.2 .4 1.1 .8 .3 3.9
.9 1.0 .7 -1.0 5.7 5.4 1.8 2.7 2.1 1.8 6.1 4.7 -1.3 2.2 .8 .7 2.2 4.1 3.0 .6 1.6 .0 1.2 .4 .7
1.3 .7 .6 -1.9 1.1 1.2 2.9 1.5 2.5 -1.0 -1.6 .6 1.6 .6 .2 1.4 1.3 3.1 .0 .4 .9 .4 .6 1.5 .3 .3
.8 2.0 1.9 .4 2.0 2.2 1.7 -.9 .3 .1 -.2 1.9 1.1 1.8 1.6 -1.2 2.4 2.1 -1.9 .2 .7 .6 .0 .4 .6 1.5
1.4 .4 1.3 .6 2.0 1.3 .4 .3 3.6 3.8 -.5 .7 .4 .3 .6 .9 .8
1.2 -.3 -1.6 2.5 1.5 1.1 .0 .1 3.1 2.3 2.0 1.8 .8 -1.4 .2 1.9
.8 -.4 1.9 3.6 4.2 .0 1.2 1.5 2.2 -.1 1.8 -.4 1.5

Figure 6b. AIRCRAFT 1000 - 301 hPa mean O-B speeds (ms-1). FEBRUARY 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

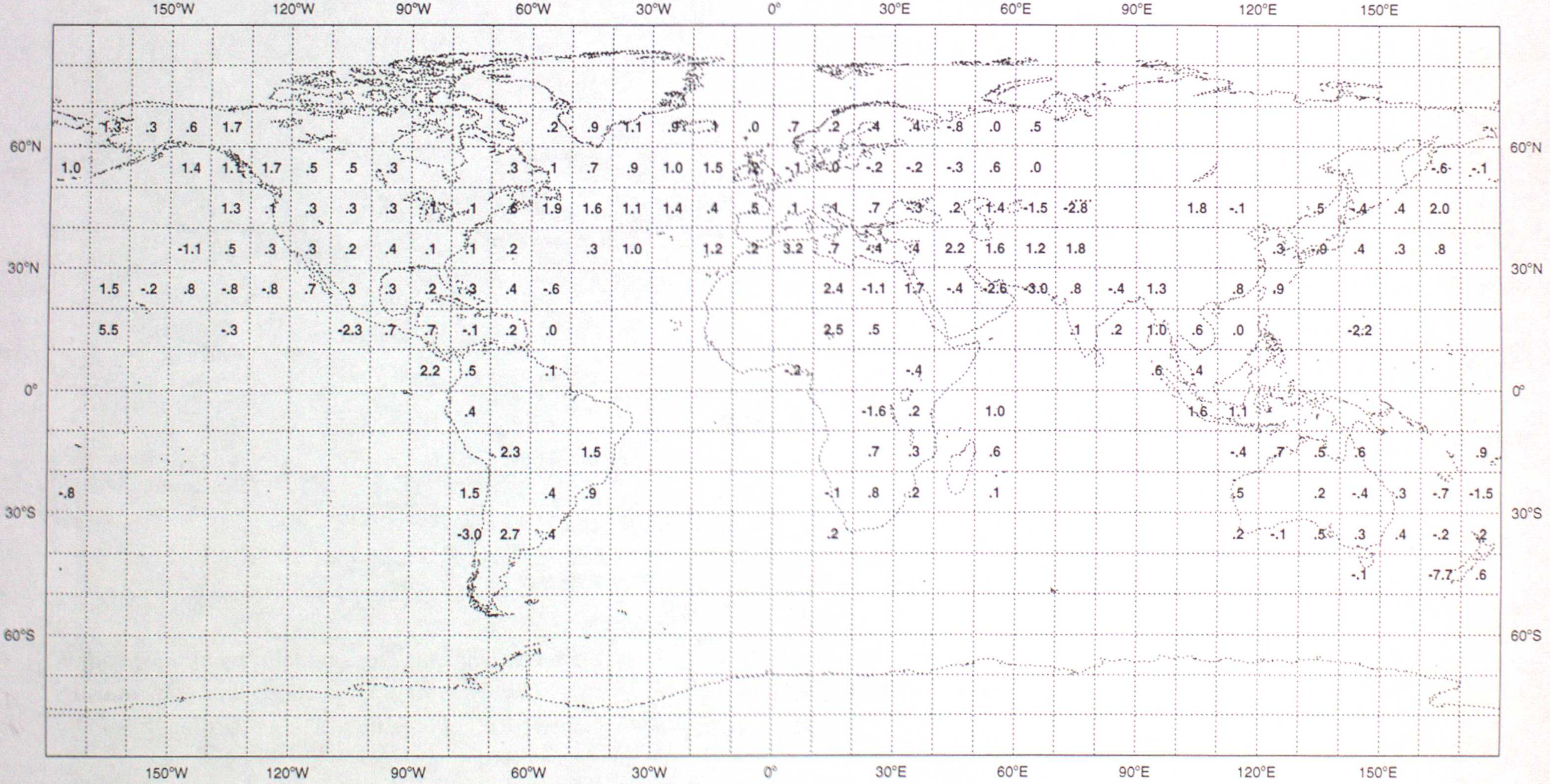

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
1.3 .3 .6 1.7 .2 .9 1.1 .9 .1 .0 .7 .2 .4 .4 -.8 .0 .5
1.0 1.4 1.2 1.7 .5 .5 .3 .3 .1 .7 .9 1.0 1.5 .2 -.1 .0 -.2 -.2 -.3 .6 .0 -.6 -.1
1.3 .1 .3 .3 .3 .1 .1 .6 1.9 1.6 1.1 1.4 .4 .5 .1 .1 .7 .3 .2 1.4 -1.5 -2.8 1.8 -.1 .5 .4 .4 2.0
-1.1 .5 .3 .3 .2 .4 .1 .1 .2 .3 1.0 1.2 .2 3.2 .7 .4 .4 2.2 1.6 1.2 1.8 .3 .9 .4 .3 .8
1.5 -.2 .8 -.8 -.8 .7 .3 .3 .2 .3 .4 -.6 2.4 -1.1 1.7 -.4 -2.6 -3.0 .8 -.4 1.3 .8 .9
5.5 -.3 -2.3 .7 .7 -.1 .2 .0 2.5 .5 .1 .2 1.0 .6 .0 -2.2
2.2 .5 .1 .2 -.4 .6 .4
.4 -1.6 .2 1.0 1.6 1.1
2.3 1.5 .7 .3 .6 -.4 .7 .5 .6 .9
-.8 1.5 .4 .9 -.1 .8 .2 .1 .5 .2 -.4 .3 -.7 -1.5
-3.0 2.7 .4 .2 .2 -.1 .5 .3 .4 -.2 .2
-.1 -7.7 .6
150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

Figure 7a. AIRCRAFT 300 - 150 hPa RMS O-B vector (ms-1). FEBRUARY 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

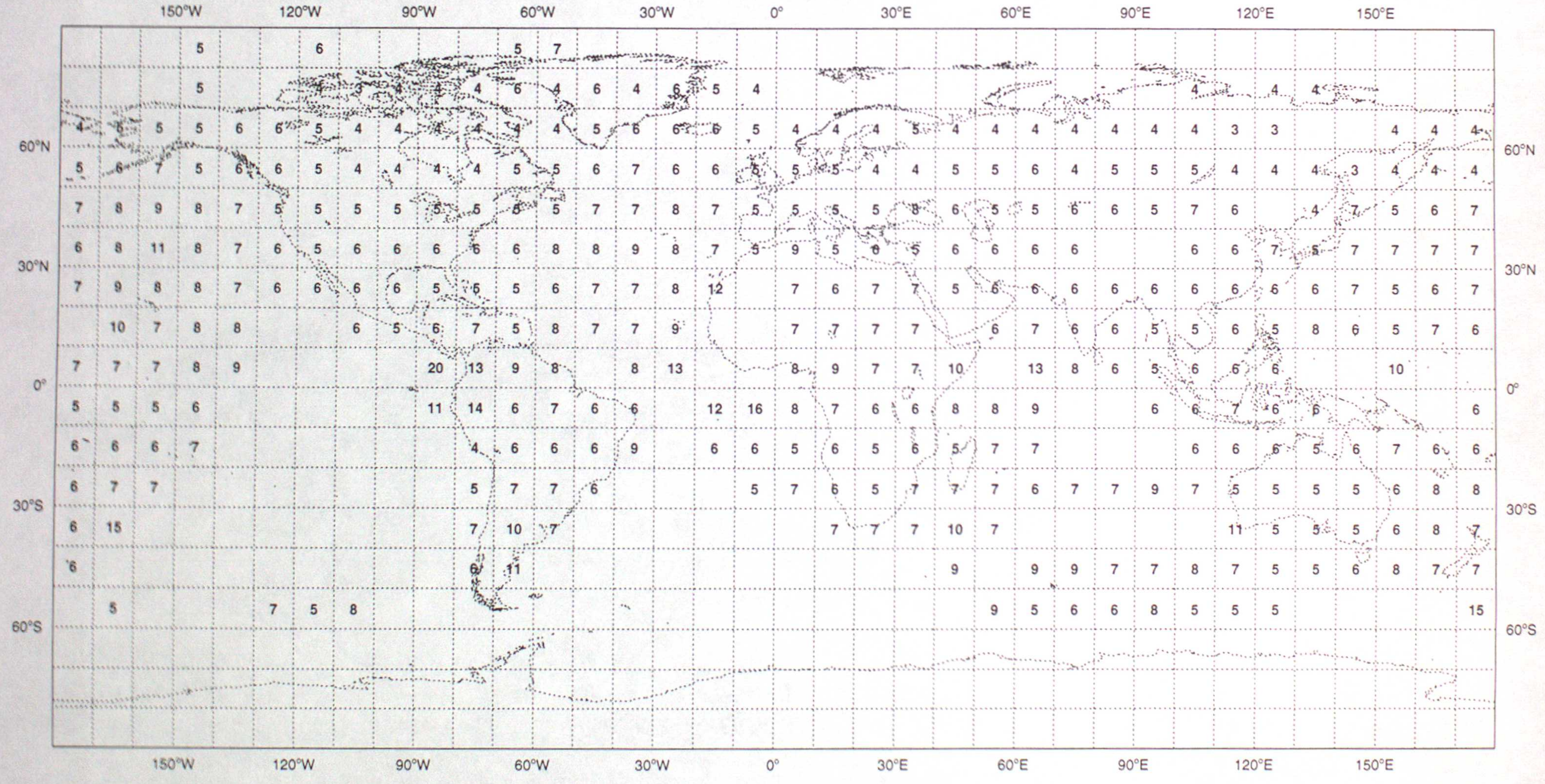

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

Figure 7b. AIRCRAFT 1000 - 301 hPa RMS O-B vector (ms-1). FEBRUARY 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

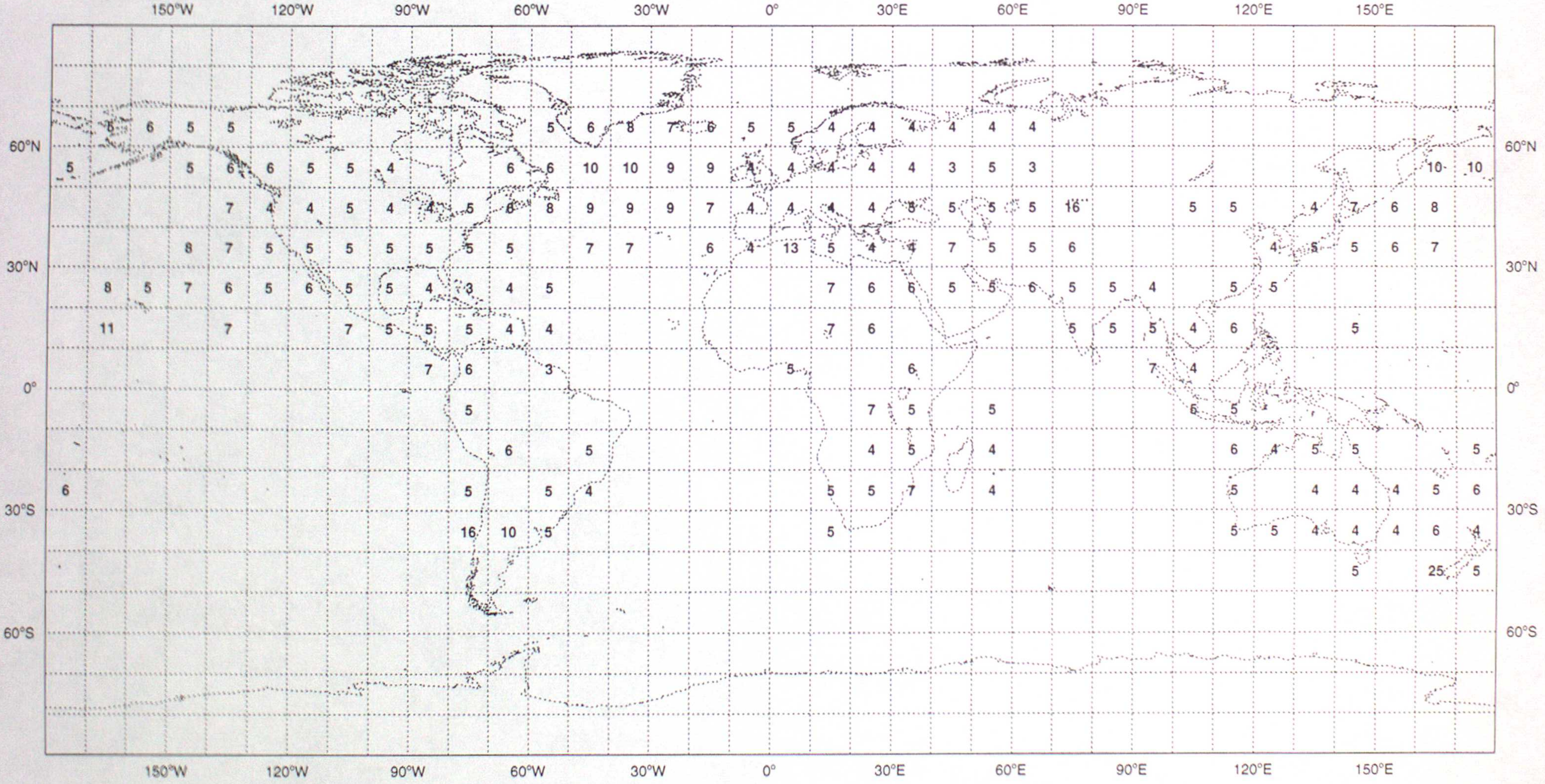

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
5 6 5 5 5 6 8 7 6 5 5 4 4 4 4 4 4
5 5 6 6 5 5 4 6 6 10 10 9 9 4 4 4 4 4 3 5 3 10 10
7 4 4 5 4 4 5 6 8 9 9 9 7 4 4 4 4 8 5 5 5 16 5 5 4 7 6 8
8 7 5 5 5 5 5 5 5 7 7 6 4 13 5 4 4 7 5 5 6 4 5 5 6 7
8 5 7 6 5 6 5 5 4 3 4 5 7 6 6 5 5 6 5 5 4 5 5
11 7 7 5 5 5 4 4 7 6 5 5 5 4 6 5
7 6 3 5 6 7 4
5 7 5 5 6 5
6 5 4 5 4 6 4 5 5 5
6 5 5 4 5 5 7 4 5 4 4 4 5 6
16 10 5 5 5 5 4 4 4 6 4
5 25 5

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: February 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 30.0 hPa
Element monitored		:GEOPOTENTIAL HEIGHT IN metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown duringperiod.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.1	
SELECTION CRITERIA	: ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.	

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
22820	00	Z	70	62/ 34	15	0	120.5	157.1	198.0	6
23933	00	Z	50	61/ 69	21	0	107.2	194.8	222.3	6
28722	00	Z	50	55/ 56	19	0	119.9	150.2	192.2	4
28722	12	Z	50	55/ 56	15	0	136.2	185.6	230.2	5
33345	00	Z	70	50/ 31	23	0	41.2	-121.4	128.2	5
34247	12	Z	50	50/ 41	18	6	65.2	202.1	212.3	6
40179	00	Z	150	32/ 35	1	0	0.0	-148.0	148.0	7
42101	12	Z	50	30/ 76	13	0	105.5	162.9	194.1	4
42314	00	Z	200	27/ 95	21	0	81.5	-33.1	88.0	6
42314	12	Z	150	27/ 95	15	1	80.9	-73.7	109.4	5
42339	00	Z	200	26/ 73	14	0	98.1	-55.2	112.6	6
42361	12	Z	150	26/ 78	18	0	96.9	-42.1	105.7	5
42369	00	Z	50	27/ 81	15	0	175.3	-2.5	175.3	4
42379	12	Z	30	27/ 83	10	0	176.1	92.7	199.0	4
42397	00	Z	200	27/ 88	10	0	81.1	-106.7	134.0	5
42397	12	Z	250	27/ 88	12	0	79.4	-54.6	96.3	5
42492	00	Z	70	26/ 85	14	0	108.9	120.6	162.5	4
42647	12	Z	70	23/ 73	11	4	66.4	264.5	272.7	8
42667	12	Z	150	23/ 77	17	0	106.0	-27.0	109.4	4
42701	00	Z	150	23/ 85	22	0	93.5	-60.6	111.4	5
42701	12	Z	150	23/ 85	14	0	84.3	-69.6	109.3	5
42724	12	Z	150	24/ 91	15	0	72.9	-91.8	117.2	5
42809	00	Z	50	23/ 88	14	1	130.7	104.6	167.4	7
42867	12	Z	30	21/ 79	14	0	103.1	184.8	211.6	6
42971	00	Z	30	20/ 86	16	1	103.1	263.6	283.0	10
42971	12	Z	70	20/ 86	20	1	111.2	152.9	189.1	11
43003	00	Z	200	19/ 73	14	0	95.4	-25.0	98.6	5
43003	12	Z	150	19/ 73	9	2	87.4	175.1	195.7	6
43014	00	Z	200	20/ 75	17	0	96.6	-38.1	103.8	4
43041	00	Z	1000	19/ 82	22	0	9.2	29.6	31.0	4
43128	00	Z	150	17/ 78	25	0	71.1	-82.7	109.1	6
43128	12	Z	30	17/ 78	14	1	76.1	301.1	310.5	4
43185	00	Z	150	16/ 81	18	0	78.3	-71.6	106.1	7
43192	00	Z	150	15/ 74	19	0	67.8	-122.7	140.2	8
43279	00	Z	150	13/ 80	26	0	60.8	-92.8	111.0	4
43285	12	Z	50	13/ 75	14	2	86.5	237.0	252.3	8
43346	00	Z	150	11/ 80	26	0	69.8	-75.9	103.1	5
43353	00	Z	150	10/ 76	21	0	79.7	-75.1	109.5	6
43371	00	Z	150	8/ 77	27	0	82.0	-70.0	107.8	6
47122	00	Z	30	37/ 127	13	0	49.8	191.5	197.8	4
53463	00	Z	1000	41/ 112	27	0	32.2	22.7	39.4	8
53463	12	Z	70	41/ 112	18	0	75.3	176.5	191.9	8
83971	12	Z	100	-30/ -51	1	0	0.0	143.0	143.0	4
91366	00	Z	50	9/ 168	18	2	100.8	214.9	237.3	5
97560	00	Z	300	-1/ 136	10	0	30.7	-63.2	70.3	5

Figure 8. TEMP 500 hPa geopotential mean daily count. FEBRUARY 2001

All hours

Global average number of observations in 24 hours = 1177

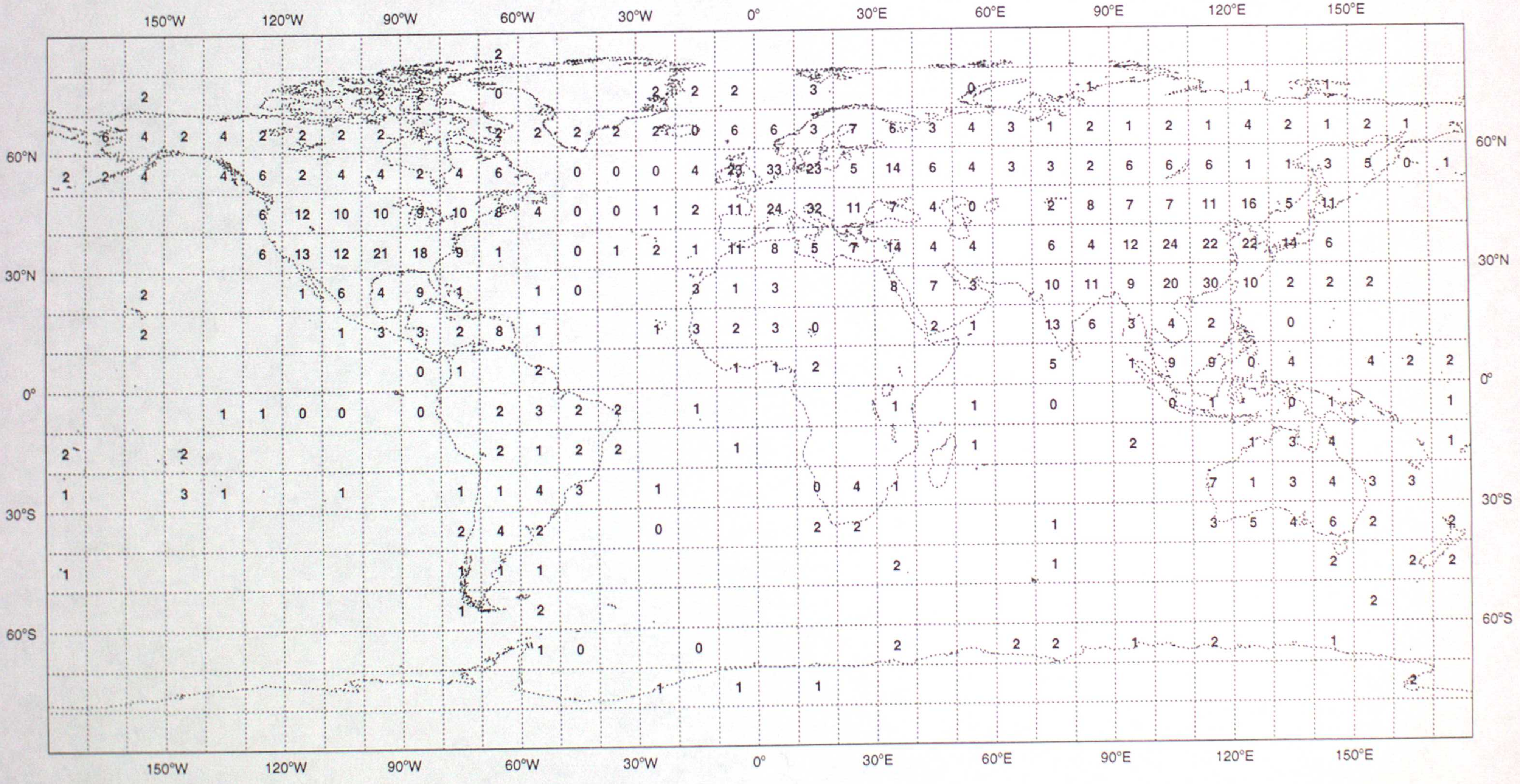

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: February 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 100.0 hPa

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.

:UBIAS,VBIAS :Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.2

SELECTION CRITERIA : ≥ 10 observations and ≥ 15 m s^{-1} RMS vector wind.

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
PSPIU	00	V	100	-5/ -81	28	0	100	-9.1	-3.7	26.3	3
PSPIU	12	V	150	-5/ -81	28	0	100	-10.9	1.1	29.6	4
08594	12	V	150	17/ -23	22	0	100	-5.6	9.9	19.4	1
10954	12	V	300	48/ 11	9	0	11	-5.7	4.0	19.0	1
17062	12	V	100	41/ 29	16	0	6	-0.6	1.3	15.1	1
42410	00	V	400	26/ 92	17	0	100	-10.0	1.2	17.8	1
42410	12	V	500	26/ 92	12	0	100	-7.9	5.4	18.3	1
42492	12	V	300	26/ 85	11	0	9	2.7	5.1	15.1	1
42647	12	V	250	23/ 73	20	0	5	1.5	4.4	17.6	1
42701	00	V	200	23/ 85	13	1	7	-4.3	1.0	23.2	1
43466	12	V	300	7/ 80	12	0	8	3.6	1.8	18.5	1
44259	00	V	250	48/ 115	19	0	5	-0.2	4.6	18.0	2
47158	00	V	200	35/ 127	28	0	7	-2.0	-0.3	17.6	1
48407	12	V	100	15/ 105	10	0	10	5.4	-12.6	18.0	1
48601	00	V	100	5/ 100	28	0	7	7.5	-2.1	15.2	1
48615	12	V	150	6/ 102	26	0	11	-5.8	5.5	15.6	1
48650	00	V	100	3/ 102	27	0	3	7.8	-0.8	15.5	2
48650	12	V	150	3/ 102	27	0	11	-8.9	1.9	15.8	2
52889	00	V	100	36/ 104	26	0	7	4.1	-1.1	15.0	1
52889	12	V	100	36/ 104	25	0	12	-1.1	0.6	15.8	1
55299	00	V	150	31/ 92	26	0	3	-5.0	-1.8	24.4	2
56137	00	V	250	31/ 97	22	0	9	-8.2	-1.5	16.1	1
56146	00	V	300	32/ 100	20	0	40	9.8	-1.5	15.8	1
56691	00	V	100	27/ 104	23	0	47	8.1	2.6	15.1	1
60360	12	V	150	37/ 8	15	0	100	2.7	-10.5	20.5	1
60620	12	V	250	28/ 0	14	0	100	-21.5	-2.1	26.7	3
60630	12	V	250	27/ 2	18	0	100	-12.8	-2.8	19.3	3
60656	12	V	200	28/ -8	19	0	73	-6.8	-4.5	15.2	1
62306	12	V	100	31/ 27	15	0	26	8.3	-3.5	16.7	1
62337	00	V	200	31/ 34	26	0	100	-7.0	13.1	23.2	6
62337	12	V	250	31/ 34	25	0	100	-6.5	15.4	22.3	5
62378	00	V	150	30/ 31	26	0	96	-9.4	-4.0	16.4	3
62378	12	V	200	30/ 31	26	0	100	-12.7	-3.4	17.3	4
63741	00	V	150	-1/ 37	16	0	37	11.4	-4.4	16.9	1
64458	12	V	150	2/ 16	27	0	44	14.3	0.6	19.4	1
64500	12	V	150	0/ 9	9	0	44	21.4	2.8	25.2	1
68512	12	V	200	-30/ 18	18	0	16	-11.4	3.0	15.9	1
71801	00	V	300	48/ -53	23	0	13	5.5	-4.4	17.4	3
71801	12	V	300	48/ -53	24	0	25	7.2	-4.4	17.1	3
87860	12	V	150	-46/ -67	25	0	4	-4.2	-0.1	21.3	1
96413	00	V	100	1/ 110	12	0	8	-2.2	-1.1	15.8	1
96413	12	V	100	1/ 110	6	0	16	1.8	-4.7	20.5	1
96441	00	V	100	3/ 113	26	0	15	4.1	-0.8	16.4	1
97072	00	V	100	-1/ 120	17	0	5	4.0	1.0	15.0	1
97180	00	V	700	-5/ 120	18	0	16	-1.3	0.6	17.7	1

Figure 9. TEMP/PILOT 300 hPa wind mean daily count. FEBRUARY 2001

All hours

Global average number of observations in 24 hours = 1392

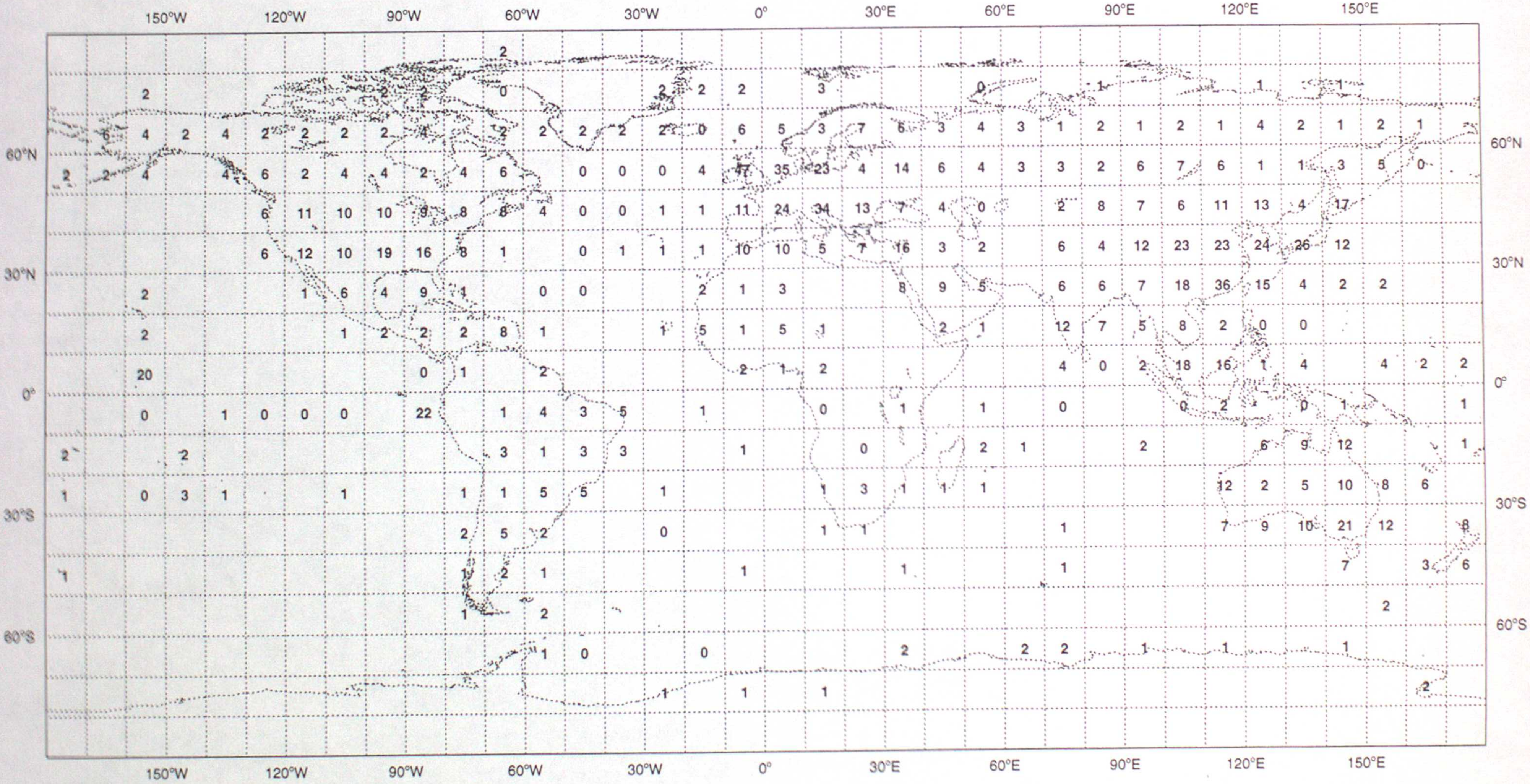

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
2
2 0 2 2 2 3 0 1 1 1
6 4 2 4 2 2 2 2 4 2 2 2 2 2 0 6 5 3 7 6 3 4 3 1 2 1 2 1 4 2 1 2 1
2 2 4 4 6 2 4 4 2 4 6 0 0 0 4 47 35 23 4 14 6 4 3 3 2 6 7 6 1 1 3 5 0
6 11 10 10 9 8 8 4 0 0 1 1 11 24 34 13 7 4 0 2 8 7 6 11 13 4 17
6 12 10 19 16 8 1 0 1 1 1 10 10 5 7 16 3 2 6 4 12 23 23 24 26 12
2 1 6 4 9 1 0 0 2 1 3 8 9 5 6 6 7 18 36 15 4 2 2
2 1 2 2 2 8 1 1 5 1 5 1 2 1 12 7 5 8 2 0 0
20 0 1 2 2 1 2 4 0 2 18 16 1 4 4 2 2
0 1 0 0 0 22 1 4 3 5 1 0 1 1 0 0 2 0 1 1
2 2 3 1 3 3 1 0 2 1 2 6 9 12 1
1 0 3 1 1 1 1 5 5 1 1 3 1 1 1 12 2 5 10 8 6
2 5 2 0 1 1 1 7 9 10 21 12 8
1 1 2 1 1 1 1 7 3 6
1 2 2
1 0 0 2 2 2 1 1 1
1 1 1 2

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: February 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 500.0 - 150.0 hPa

Element monitored :WIND DIRECTION in degrees

Parameters monitored

:NUM OBS :Average number of observations at all levels.

:BIAS :Mean difference of observations from background values from all levels.

:MAX SPREAD :(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels

:SD :SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and
ABSOLUTE BIAS ≥ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
08594	12	DD	17/ -23	21	-12.5	8.9	15.8
28698	00	DD	55/ 73	20	-12.6	4.5	19.7
29612	12	DD	55/ 78	22	23.3	5.2	9.2
42397	00	DD	27/ 88	9	10.2	5.5	8.5
42397	12	DD	27/ 88	8	12.5	1.8	7.3
48914	00	DD	9/ 105	7	34.1	9.4	23.4
54161	00	DD	44/ 125	9	11.5	9.3	9.3
60360	12	DD	37/ 8	18	17.2	7.5	15.7
60490	12	DD	36/ -1	9	11.1	3.6	9.9
62337	12	DD	31/ 34	24	-20.6	3.7	7.8
78486	12	DD	18/ -70	16	13.2	9.7	16.3
78583	12	DD	18/ -88	13	10.4	8.1	18.8
78866	12	DD	18/ -63	22	-12.2	1.9	11.7
94302	00	DD	-22/ 114	12	-10.1	9.0	26.0

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH: February 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES-8, GOES-10, METEOSAT-5, METEOSAT-7, GMS-5, INSAT.

Standard of comparison :Background field from UKMO global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer 701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

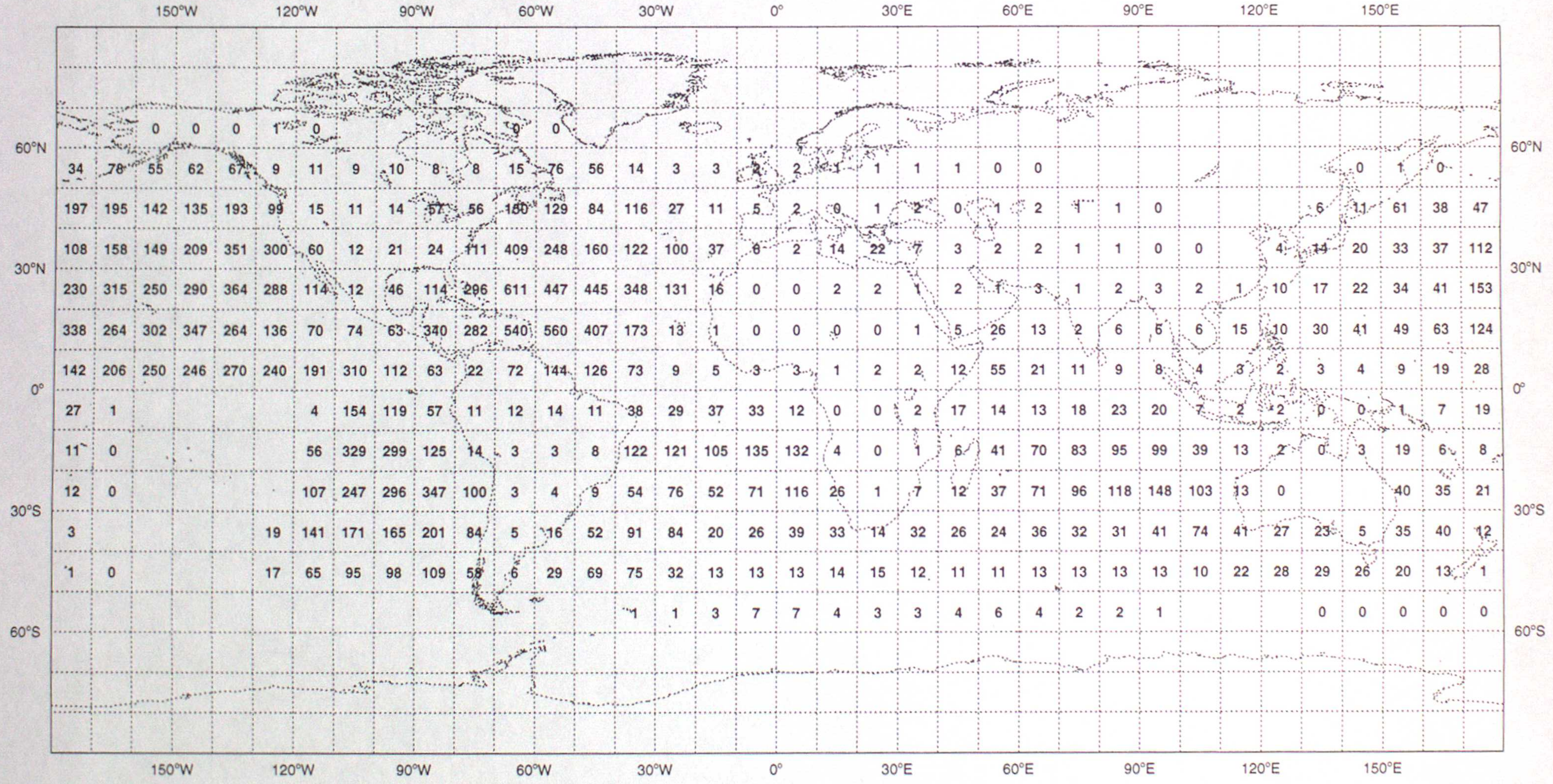
:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

:RMS of observation minus background vector differences

Figure 10. SATOB 701 - 1000 hPa mean daily count. FEBRUARY 2001
Global average number of observations in 24 hours = 24587



		0	0	0	1	0					0	0																							
34	78	55	62	67	9	11	9	10	8	8	15	76	56	14	3	3	2	2	1	1	1	1	0	0								0	1	0	
197	195	142	135	193	99	15	11	14	57	56	180	129	84	116	27	11	5	2	0	1	2	0	1	2	1	1	0				6	11	61	38	47
108	158	149	209	351	300	60	12	21	24	111	409	248	160	122	100	37	6	2	14	22	7	3	2	2	1	1	0	0		4	14	20	33	37	112
230	315	250	290	364	288	114	12	46	114	296	611	447	445	348	131	16	0	0	2	2	1	2	1	3	1	2	3	2	1	10	17	22	34	41	153
338	264	302	347	264	136	70	74	63	340	282	540	560	407	173	13	1	0	0	0	0	1	5	26	13	2	6	5	6	15	10	30	41	49	63	124
142	206	250	246	270	240	191	310	112	63	22	72	144	126	73	9	5	3	3	1	2	2	12	55	21	11	9	8	4	3	2	3	4	9	19	28
27	1					4	154	119	57	11	12	14	11	38	29	37	33	12	0	0	2	17	14	13	18	23	20	7	2	2	0	0	1	7	19
11	0					56	329	299	125	14	3	3	8	122	121	105	135	132	4	0	1	6	41	70	83	95	99	39	13	2	0	3	19	6	8
12	0					107	247	296	347	100	3	4	9	54	76	52	71	116	26	1	7	12	37	71	96	118	148	103	13	0			40	35	21
3					19	141	171	165	201	84	5	16	52	91	84	20	26	39	33	14	32	26	24	36	32	31	41	74	41	27	23	5	35	40	12
1	0				17	65	95	98	109	58	6	29	69	75	32	13	13	13	14	15	12	11	11	13	13	13	13	10	22	28	29	26	20	13	1
														1	1	3	7	7	4	3	3	4	6	4	2	2	1				0	0	0	0	0

Figure 11. SATOB 701 - 1000 hPa vector mean wind. FEBRUARY 2001
All observations
Arrows are plotted where greater than 10 obs are present

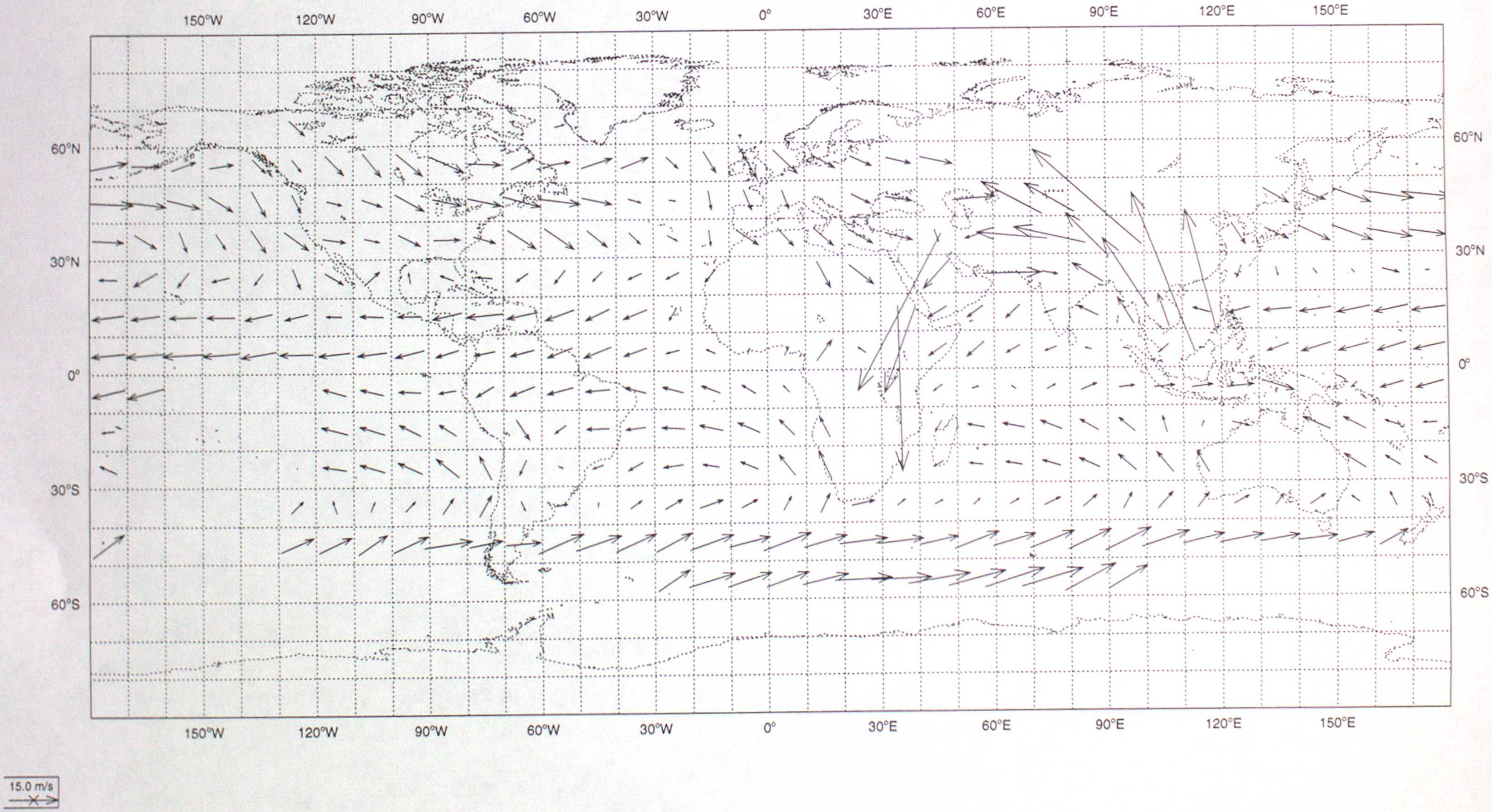

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 12. SATOB 701 - 1000 hPa vector wind differences. FEBRUARY 2001
All observations
Arrows are plotted where greater than 10 obs are present

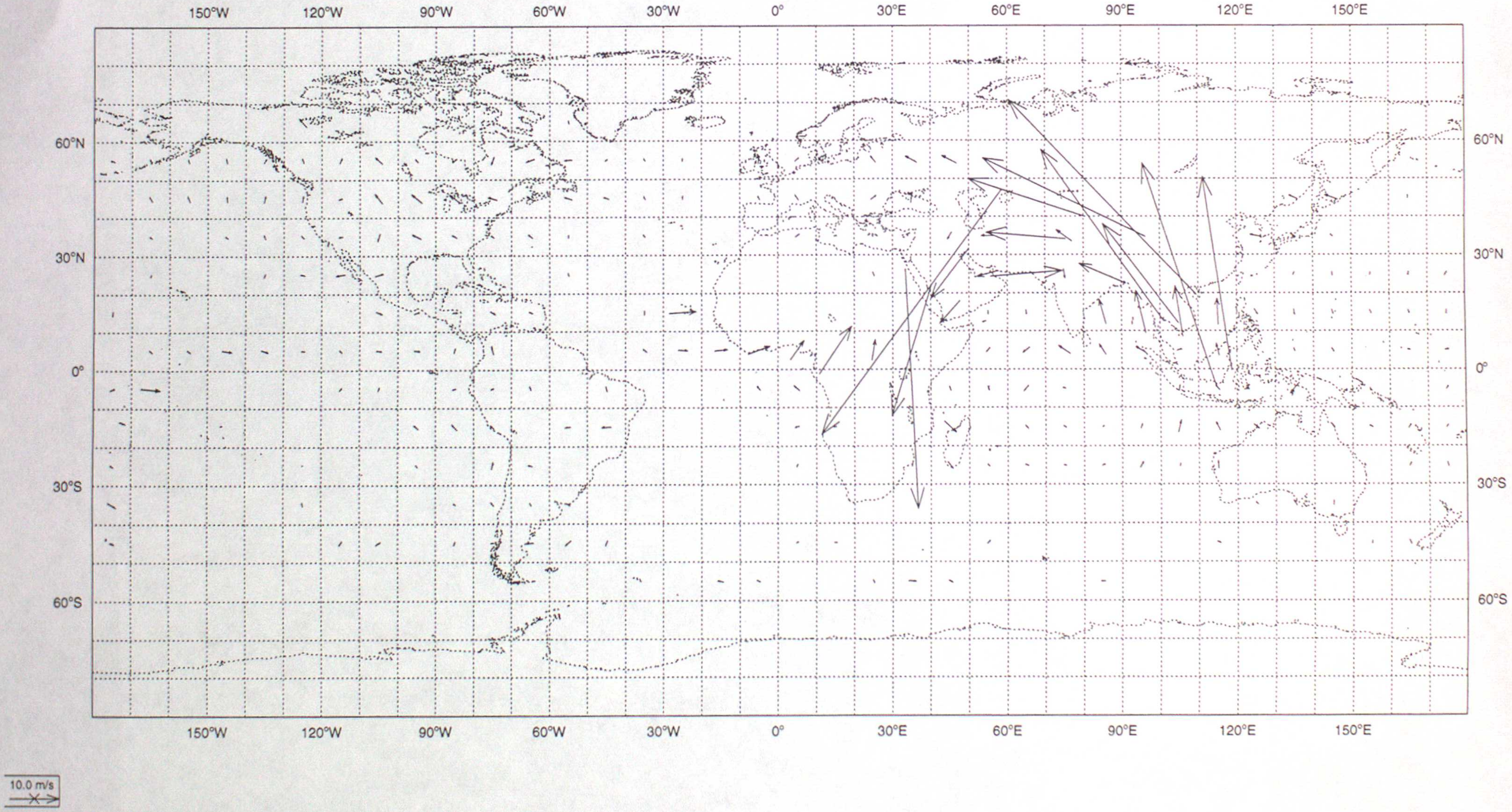

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10.0 m/s

Figure 13. SATOB 701 - 1000 hPa mean O-B speed differences (ms-1). FEBRUARY 2001
All observations
Values are plotted where greater than 10 obs are present

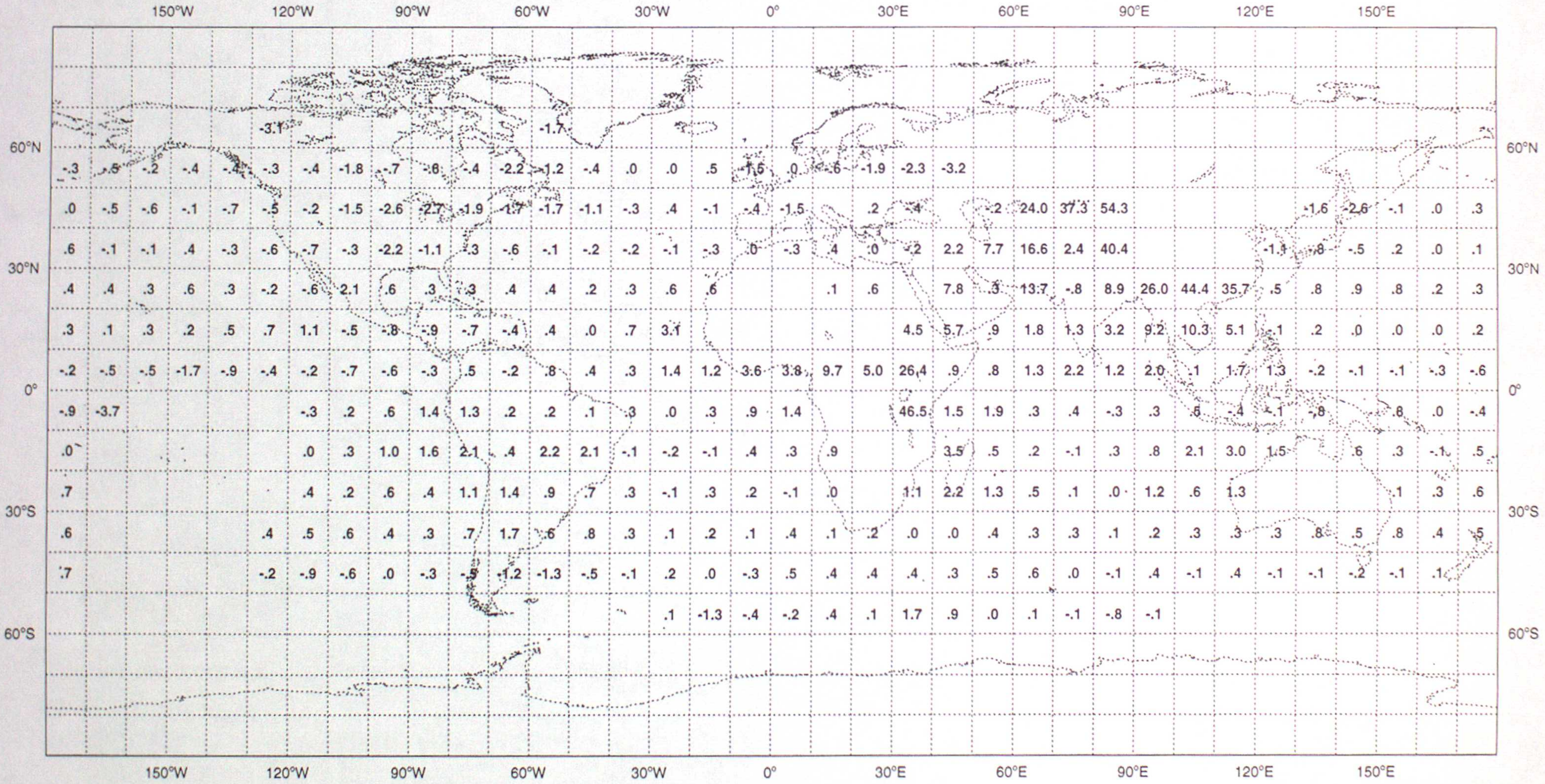

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
-3.1
-1.7
-.3 -.5 -.2 -.4 -.4 -.3 -.4 -1.8 -.7 -.6 -.4 -2.2 -1.2 -.4 .0 .0 .5 -1.5 .0 -.6 -1.9 -2.3 -3.2
.0 -.5 -.6 -.1 -.7 -.5 -.2 -1.5 -2.6 -2.7 -1.9 -1.7 -1.7 -1.1 -.3 .4 -.1 -.4 -1.5 .2 -.4 -.2 24.0 37.3 54.3 -1.6 -2.6 -.1 .0 .3
.6 -.1 -.1 .4 -.3 -.6 -.7 -.3 -2.2 -1.1 -.3 -.6 -.1 -.2 -.2 -.1 -.3 .0 -.3 .4 .0 -.2 2.2 7.7 16.6 2.4 40.4 -1.1 -.8 -.5 .2 .0 .1
.4 .4 .3 .6 .3 -.2 -.6 2.1 .6 .3 .3 .4 .4 .2 .3 .6 .6 .1 .6 7.8 .3 13.7 -.8 8.9 26.0 44.4 35.7 .5 .8 .9 .8 .2 .3
.3 .1 .3 .2 .5 .7 1.1 -.5 -.8 -.9 -.7 -.4 .4 .0 .7 3.1 4.5 5.7 .9 1.8 1.3 3.2 9.2 10.3 5.1 -.1 .2 .0 .0 .0 .2
-.2 -.5 -.5 -1.7 -.9 -.4 -.2 -.7 -.6 -.3 .5 -.2 .8 .4 .3 1.4 1.2 3.6 3.8 9.7 5.0 26.4 .9 .8 1.3 2.2 1.2 2.0 .1 1.7 1.3 -.2 -.1 -.1 -.3 -.6
-.9 -3.7 -.3 .2 .6 1.4 1.3 .2 .2 .1 .3 .0 .3 .9 1.4 46.5 1.5 1.9 .3 .4 -.3 .3 .6 -.4 -.1 -.8 .8 .0 -.4
.0 .0 .3 1.0 1.6 2.1 .4 2.2 2.1 -.1 -.2 -.1 .4 .3 .9 3.5 .5 .2 -.1 .3 .8 2.1 3.0 1.5 .6 .3 -.1 .5
.7 .4 .2 .6 .4 1.1 1.4 .9 .7 .3 -.1 .3 .2 -.1 .0 1.1 2.2 1.3 .5 .1 .0 1.2 .6 1.3 .1 .3 .6
.6 .4 .5 .6 .4 .3 .7 1.7 .6 .8 .3 .1 .2 .1 .4 .1 .2 .0 .0 .4 .3 .3 .1 .2 .3 .3 .3 .8 .5 .8 .4 .5
.7 -.2 -.9 -.6 .0 -.3 -.5 -1.2 -1.3 -.5 -.1 .2 .0 -.3 .5 .4 .4 .4 .3 .5 .6 .0 -.1 .4 -.1 .4 -.1 -.1 -.2 -.1 .1
.1 -1.3 -.4 -.2 .4 .1 1.7 .9 .0 .1 -.1 -.8 -.1

Figure 14. SATOB 701 - 1000 hPa RMS O-B vector differences (ms-1). FEBRUARY 2001

All observations

Values are plotted where greater than 10 obs are present

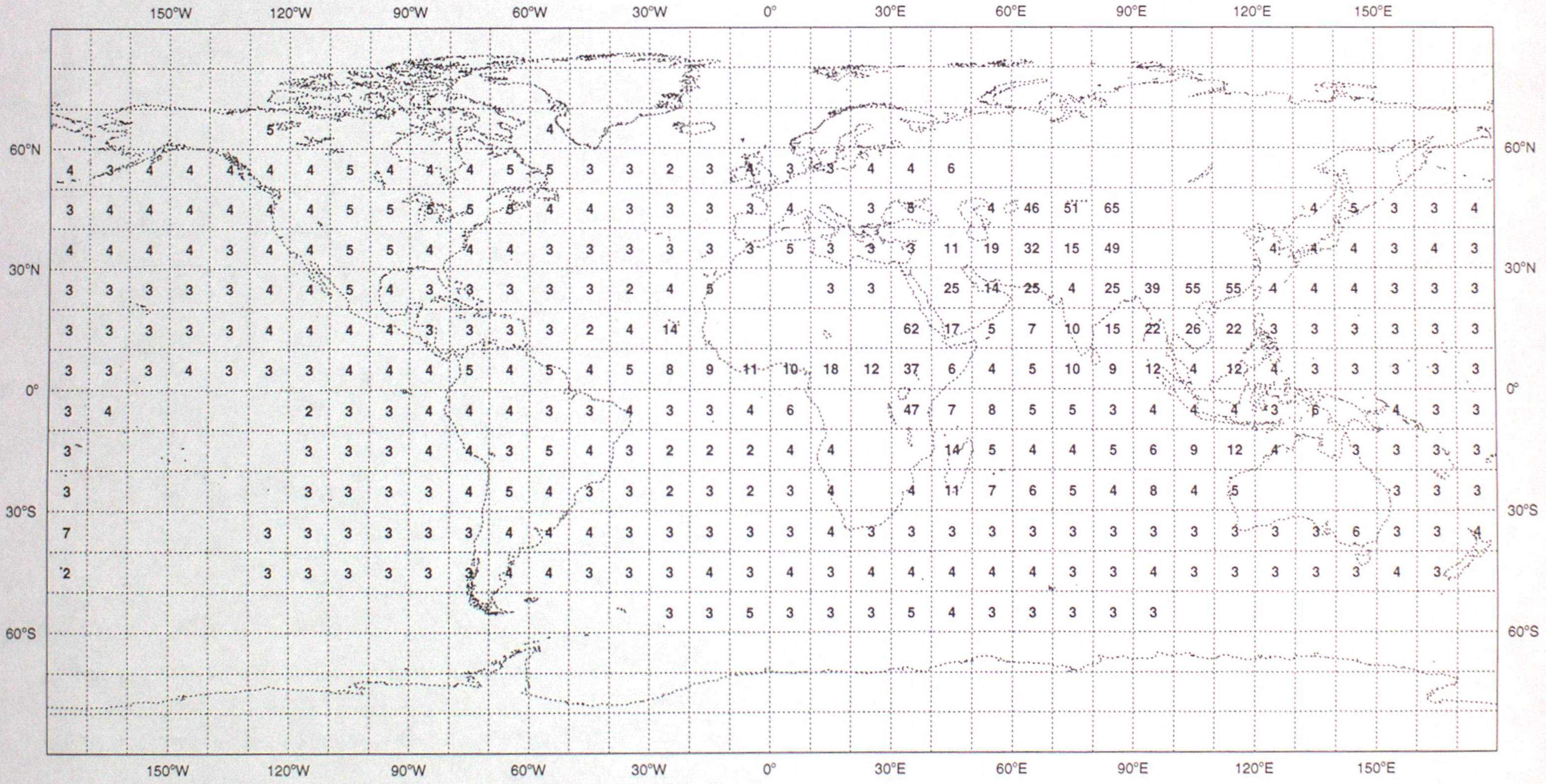

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S
5 4
4 3 4 4 4 4 4 5 4 4 4 5 5 3 3 2 3 4 3 3 4 4 6
3 4 4 4 4 4 4 5 5 5 5 6 4 4 3 3 3 3 4 3 5 4 46 51 65 4 5 3 3 4
4 4 4 4 3 4 4 5 5 4 4 4 3 3 3 3 3 3 5 3 3 3 11 19 32 15 49 4 4 4 3 4 3
3 3 3 3 3 4 4 5 4 3 3 3 3 3 2 4 5 3 3 25 14 25 4 25 39 55 55 4 4 4 3 3 3
3 3 3 3 3 4 4 4 4 3 3 3 3 2 4 14 62 17 5 7 10 15 22 26 22 3 3 3 3 3 3
3 3 3 4 3 3 3 4 4 4 5 4 5 4 5 8 9 11 10 18 12 37 6 4 5 10 9 12 4 12 4 3 3 3 3 3
3 4 2 3 3 4 4 4 3 3 4 3 3 4 6 47 7 8 5 5 3 4 4 4 3 6 4 3 3
3 3 3 3 4 4 3 5 4 3 2 2 2 4 4 14 5 4 4 5 6 9 12 4 3 3 3 3
3 3 3 3 3 4 5 4 3 3 2 3 2 3 4 4 11 7 6 5 4 8 4 5 3 3 3
7 3 3 3 3 3 3 4 4 4 3 3 3 3 3 4 3 3 3 3 3 3 3 3 3 3 3 3 6 3 3 4
2 3 3 3 3 3 3 4 4 3 3 4 3 4 3 4 4 4 4 4 3 3 4 3 3 3 3 3 4 3
3 3 5 3 3 3 5 4 3 3 3 3 3

Figure 15. SATOB 401 - 700 hPa mean daily count. FEBRUARY 2001
Global average number of observations in 24 hours = 7248

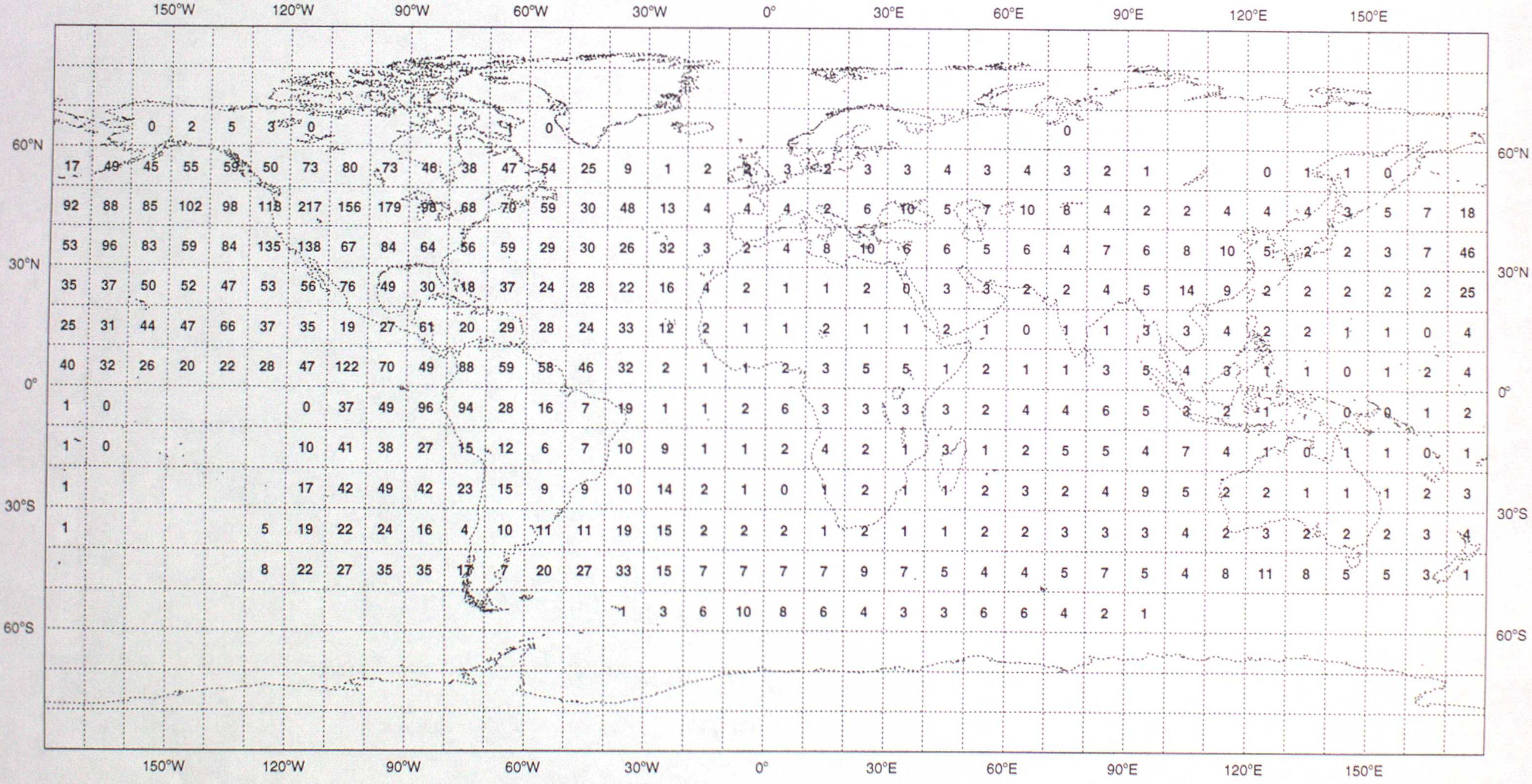

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S
0 2 5 3 0 1 0 0
17 49 45 55 59 50 73 80 73 46 38 47 54 25 9 1 2 2 3 2 3 3 4 3 4 3 2 1 0 1 1 0
92 88 85 102 98 118 217 156 179 98 68 70 59 30 48 13 4 4 4 2 6 10 5 7 10 8 4 2 2 4 4 4 3 5 7 18
53 96 83 59 84 135 138 67 84 64 56 59 29 30 26 32 3 2 4 8 10 6 6 5 6 4 7 6 8 10 5 2 2 3 7 46
35 37 50 52 47 53 56 76 49 30 18 37 24 28 22 16 4 2 1 1 2 0 3 3 2 2 4 5 14 9 2 2 2 2 2 25
25 31 44 47 66 37 35 19 27 61 20 29 28 24 33 12 2 1 1 2 1 1 2 1 0 1 1 3 3 4 2 2 1 1 0 4
40 32 26 20 22 28 47 122 70 49 88 59 58 46 32 2 1 1 2 3 5 5 1 2 1 1 3 5 4 3 1 1 0 1 2 4
1 0 0 37 49 96 94 28 16 7 19 1 1 2 6 3 3 3 3 2 4 4 6 5 3 2 1 0 0 1 2
1 0 10 41 38 27 15 12 6 7 10 9 1 1 2 4 2 1 3 1 2 5 5 4 7 4 1 0 1 1 0 1
1 17 42 49 42 23 15 9 9 10 14 2 1 0 1 2 1 1 2 3 2 4 9 5 2 2 1 1 1 2 3
1 5 19 22 24 16 4 10 11 11 19 15 2 2 2 1 2 1 1 2 2 3 3 3 4 2 3 2 2 2 3 4
8 22 27 35 35 17 7 20 27 33 15 7 7 7 7 9 7 5 4 4 5 7 5 4 8 11 8 5 5 3 1
1 3 6 10 8 6 4 3 3 6 6 4 2 1
150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S

Figure 16. SATOB 401 - 700 hPa vector mean wind. FEBRUARY 2001

All observations

Arrows are plotted where greater than 10 obs are present

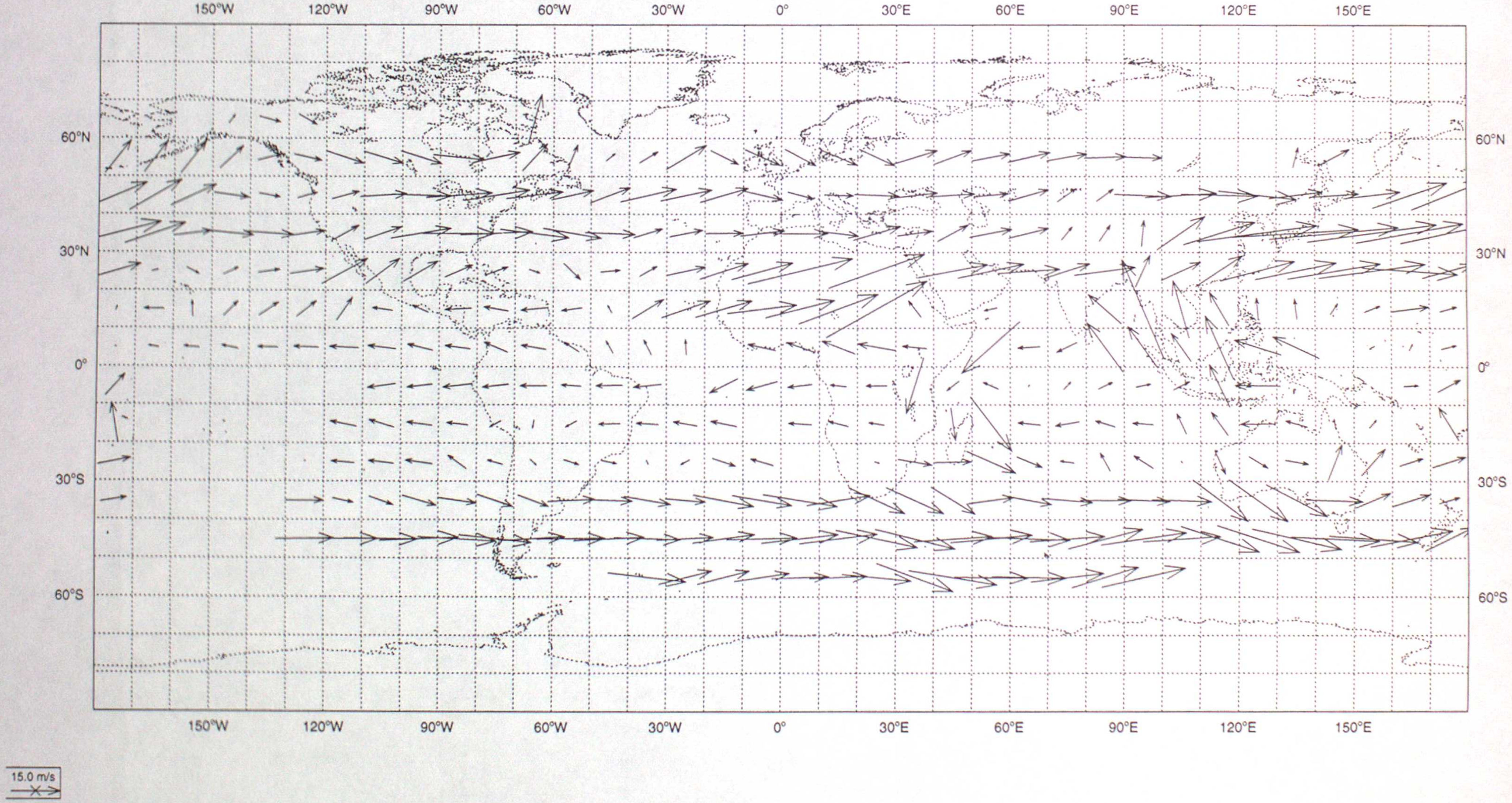

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 17. SATOB 401 - 700 hPa vector wind differences. FEBRUARY 2001

All observations

Arrows are plotted where greater than 10 obs are present

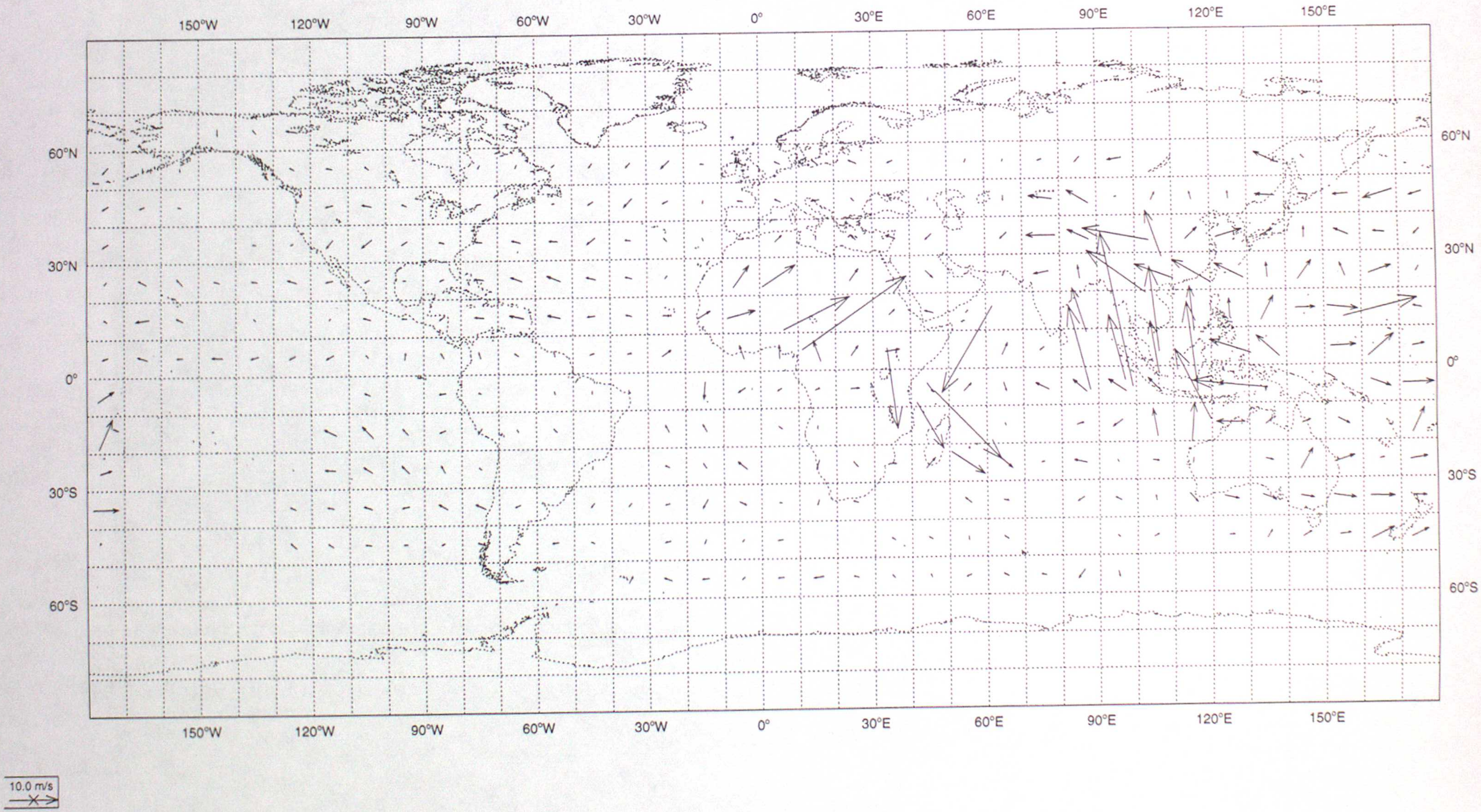

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10.0 m/s

Figure 18. SATOB 401 - 700 hPa mean O-B speed differences (ms-1). FEBRUARY 2001
All observations
Values are plotted where greater than 10 obs are present

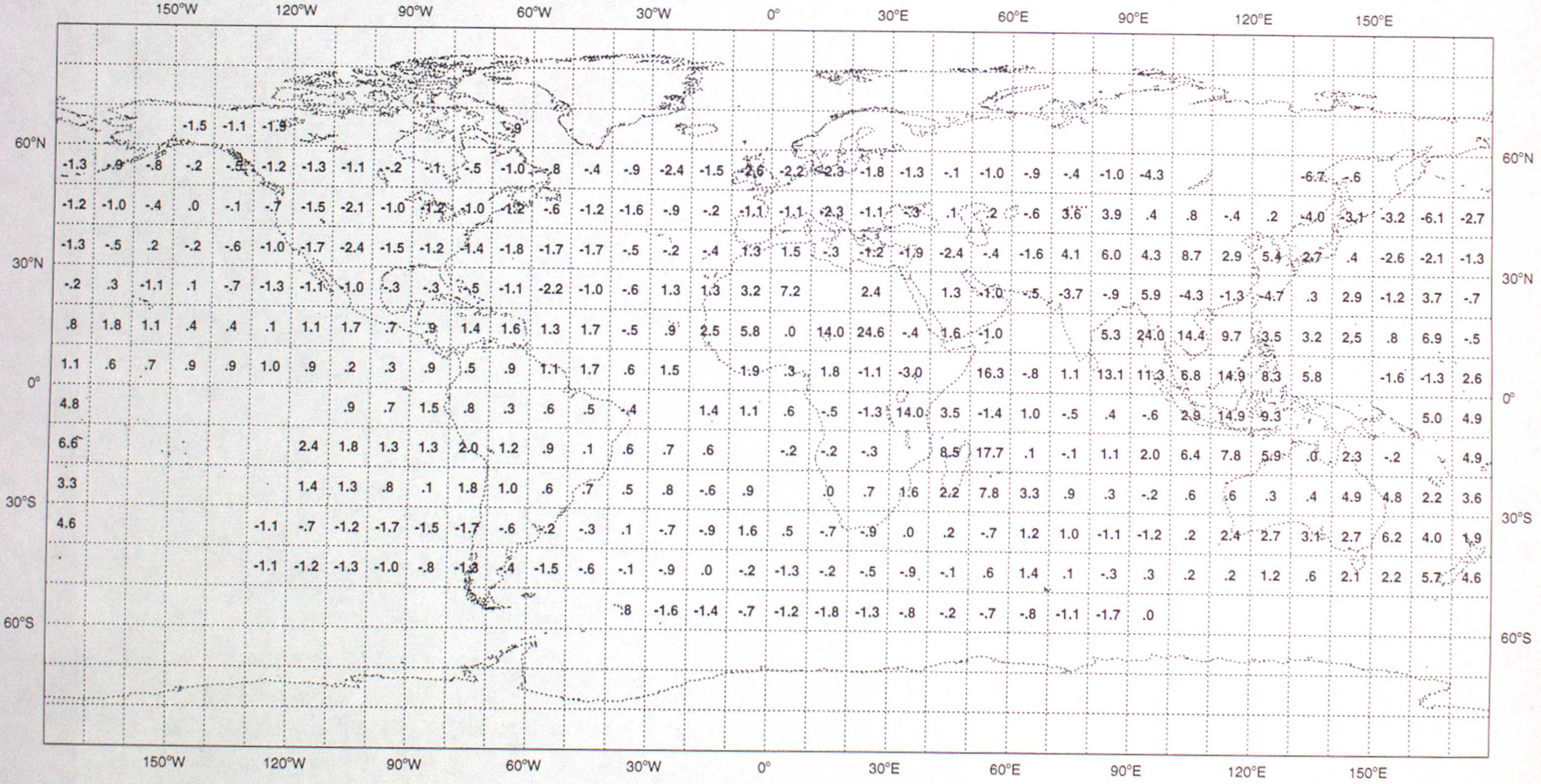

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
-1.5 -1.1 -1.9 -.9
-1.3 -.9 -.8 -.2 -.5 -1.2 -1.3 -1.1 -.2 -.1 -.5 -1.0 -.8 -.4 -.9 -2.4 -1.5 -2.6 -2.2 -2.3 -1.8 -1.3 -.1 -1.0 -.9 -.4 -1.0 -4.3 -6.7 -.6
-1.2 -1.0 -.4 .0 -.1 -.7 -1.5 -2.1 -1.0 -1.2 -1.0 -1.2 -.6 -1.2 -1.6 -.9 -.2 -1.1 -1.1 -2.3 -1.1 -.3 .1 .2 -.6 3.6 3.9 .4 .8 -.4 .2 -4.0 -3.1 -3.2 -6.1 -2.7
-1.3 -.5 .2 -.2 -.6 -1.0 -1.7 -2.4 -1.5 -1.2 -1.4 -1.8 -1.7 -1.7 -.5 -.2 -.4 1.3 1.5 -.3 -1.2 -1.9 -2.4 -.4 -1.6 4.1 6.0 4.3 8.7 2.9 5.4 2.7 .4 -2.6 -2.1 -1.3
-.2 .3 -1.1 .1 -.7 -1.3 -1.1 -1.0 -.3 -.3 -.5 -1.1 -2.2 -1.0 -.6 1.3 1.3 3.2 7.2 2.4 1.3 -1.0 -.5 -3.7 -.9 5.9 -4.3 -1.3 -4.7 .3 2.9 -1.2 3.7 -.7
.8 1.8 1.1 .4 .4 .1 1.1 1.7 .7 .9 1.4 1.6 1.3 1.7 -.5 .9 2.5 5.8 .0 14.0 24.6 -.4 1.6 -1.0 5.3 24.0 14.4 9.7 3.5 3.2 2.5 .8 6.9 -.5
1.1 .6 .7 .9 .9 1.0 .9 .2 .3 .9 .5 .9 1.1 1.7 .6 1.5 1.9 .3 1.8 -1.1 -3.0 16.3 -.8 1.1 13.1 11.3 6.8 14.9 8.3 5.8 -1.6 -1.3 2.6
4.8 .9 .7 1.5 .8 .3 .6 .5 .4 1.4 1.1 .6 -.5 -1.3 14.0 3.5 -1.4 1.0 -.5 .4 -.6 2.9 14.9 9.3 5.0 4.9
6.6 2.4 1.8 1.3 1.3 2.0 1.2 .9 .1 .6 .7 .6 -.2 -.2 -.3 8.5 17.7 .1 -.1 1.1 2.0 6.4 7.8 5.9 .0 2.3 -.2 4.9
3.3 1.4 1.3 .8 .1 1.8 1.0 .6 .7 .5 .8 -.6 .9 .0 .7 1.6 2.2 7.8 3.3 .9 .3 -.2 .6 .6 .3 .4 4.9 4.8 2.2 3.6
4.6 -1.1 -.7 -1.2 -1.7 -1.5 -1.7 -.6 -.2 -.3 .1 -.7 -.9 1.6 .5 -.7 -.9 .0 .2 -.7 1.2 1.0 -1.1 -1.2 .2 2.4 2.7 3.1 2.7 6.2 4.0 1.9
-1.1 -1.2 -1.3 -1.0 -.8 -1.3 -.4 -1.5 -.6 -.1 -.9 .0 -.2 -1.3 -.2 -.5 -.9 -.1 .6 1.4 .1 -.3 .3 .2 .2 1.2 .6 2.1 2.2 5.7 4.6
.8 -1.6 -1.4 -.7 -1.2 -1.8 -1.3 -.8 -.2 -.7 -.8 -1.1 -1.7 .0

Figure 19. SATOB 401 - 700 hPa RMS O-B vector differences (ms-1). FEBRUARY 2001
All observations
Values are plotted where greater than 10 obs are present

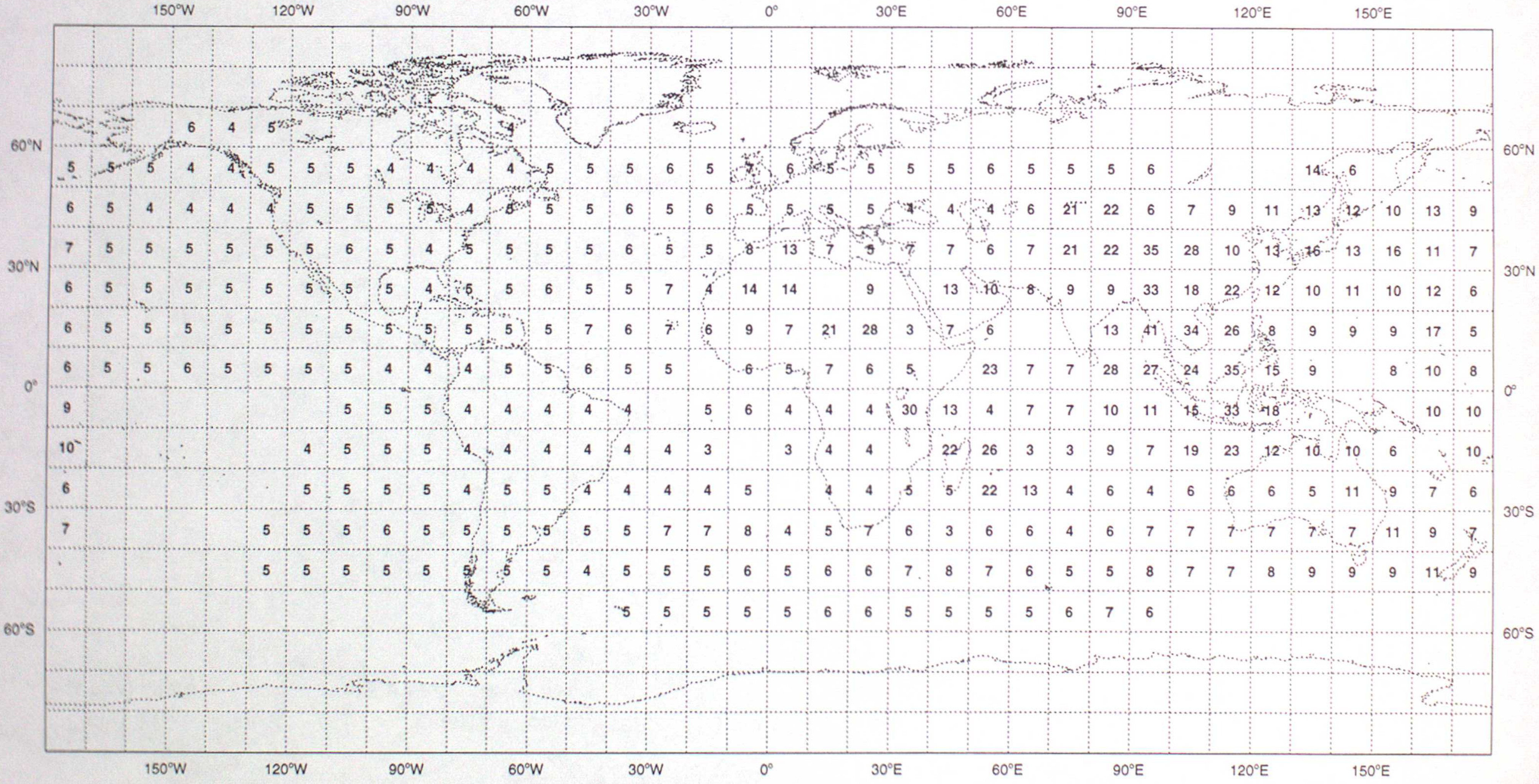
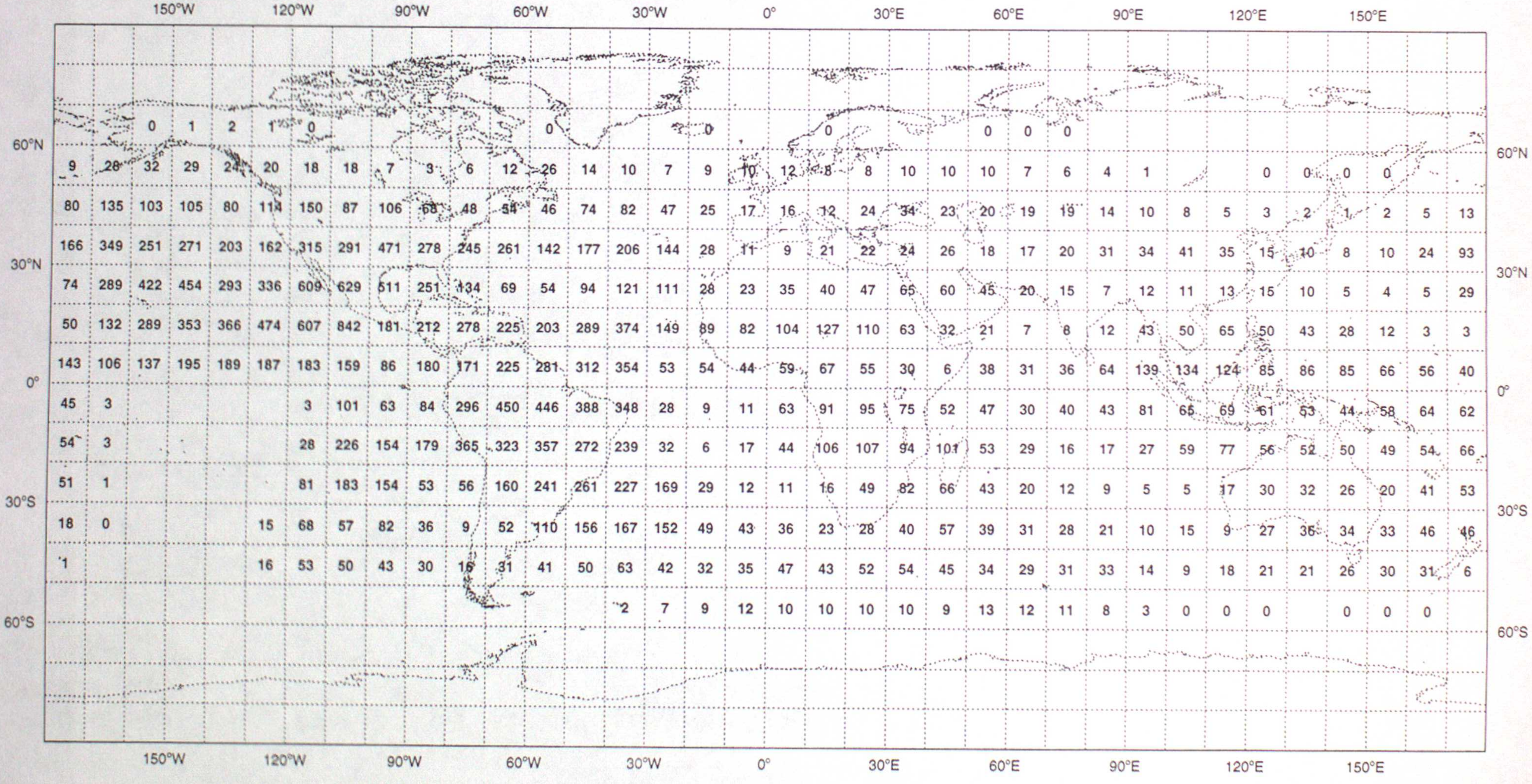

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
6 4 5 4
5 5 5 4 4 5 5 5 4 4 4 4 5 5 5 6 5 7 6 5 5 5 5 6 5 5 5 6 14 6
6 5 4 4 4 4 5 5 5 5 4 5 5 5 6 5 6 5 5 5 5 4 4 4 6 21 22 6 7 9 11 13 12 10 13 9
7 5 5 5 5 5 5 6 5 4 5 5 5 5 6 5 5 8 13 7 5 7 7 6 7 21 22 35 28 10 13 16 13 16 11 7
6 5 5 5 5 5 5 5 5 4 5 5 6 5 5 7 4 14 14 9 13 10 8 9 9 33 18 22 12 10 11 10 12 6
6 5 5 5 5 5 5 5 5 5 5 5 5 7 6 7 6 9 7 21 28 3 7 6 13 41 34 26 8 9 9 9 17 5
6 5 5 6 5 5 5 5 4 4 4 5 5 6 5 5 6 5 7 6 5 23 7 7 28 27 24 35 15 9 8 10 8
9 5 5 5 4 4 4 4 4 5 6 4 4 4 30 13 4 7 7 10 11 15 33 18 10 10
10 4 5 5 5 4 4 4 4 4 4 3 3 4 4 22 26 3 3 9 7 19 23 12 10 10 6 10
6 5 5 5 5 4 5 5 4 4 4 4 5 4 4 5 5 22 13 4 6 4 6 6 6 5 11 9 7 6
7 5 5 5 6 5 5 5 5 5 5 7 7 8 4 5 7 6 3 6 6 4 6 7 7 7 7 7 7 11 9 7
5 5 5 5 5 5 5 5 4 5 5 5 6 5 6 6 7 8 7 6 5 5 8 7 7 8 9 9 9 11 9
5 5 5 5 5 6 6 5 5 5 5 6 7 6

Figure 20. SATOB 101 - 400 hPa mean daily count. FEBRUARY 2001
Global average number of observations in 24 hours = 33259



		0	1	2	1	0						0				0			0				0	0	0										
9	28	32	29	24	20	18	18	7	3	6	12	26	14	10	7	9	10	12	8	8	10	10	10	7	6	4	1			0	0	0	0		
80	135	103	105	80	114	150	87	106	68	48	54	46	74	82	47	25	17	16	12	24	34	23	20	19	19	14	10	8	5	3	2	1	2	5	13
166	349	251	271	203	162	315	291	471	278	245	261	142	177	206	144	28	11	9	21	22	24	26	18	17	20	31	34	41	35	15	10	8	10	24	93
74	289	422	454	293	336	609	629	511	251	134	69	54	94	121	111	28	23	35	40	47	65	60	45	20	15	7	12	11	13	15	10	5	4	5	29
50	132	289	353	366	474	607	842	181	212	278	225	203	289	374	149	89	82	104	127	110	63	32	21	7	8	12	43	50	65	50	43	28	12	3	3
143	106	137	195	189	187	183	159	86	180	171	225	281	312	354	53	54	44	59	67	55	30	6	38	31	36	64	139	134	124	85	86	85	66	56	40
45	3					3	101	63	84	296	450	446	388	348	28	9	11	63	91	95	75	52	47	30	40	43	81	65	69	61	53	44	58	64	62
54	3					28	226	154	179	365	323	357	272	239	32	6	17	44	106	107	94	101	53	29	16	17	27	59	77	56	52	50	49	54	66
51	1					81	183	154	53	56	160	241	261	227	169	29	12	11	16	49	82	66	43	20	12	9	5	5	17	30	32	26	20	41	53
18	0				15	68	57	82	36	9	52	110	156	167	152	49	43	36	23	28	40	57	39	31	28	21	10	15	9	27	36	34	33	46	46
1					16	53	50	43	30	16	31	41	50	63	42	32	35	47	43	52	54	45	34	29	31	33	14	9	18	21	21	26	30	31	6
														2	7	9	12	10	10	10	10	9	13	12	11	8	3	0	0	0		0	0	0	

Figure 21. SATOB 101 - 400 hPa vector mean wind. FEBRUARY 2001
All observations
Arrows are plotted where greater than 10 obs are present

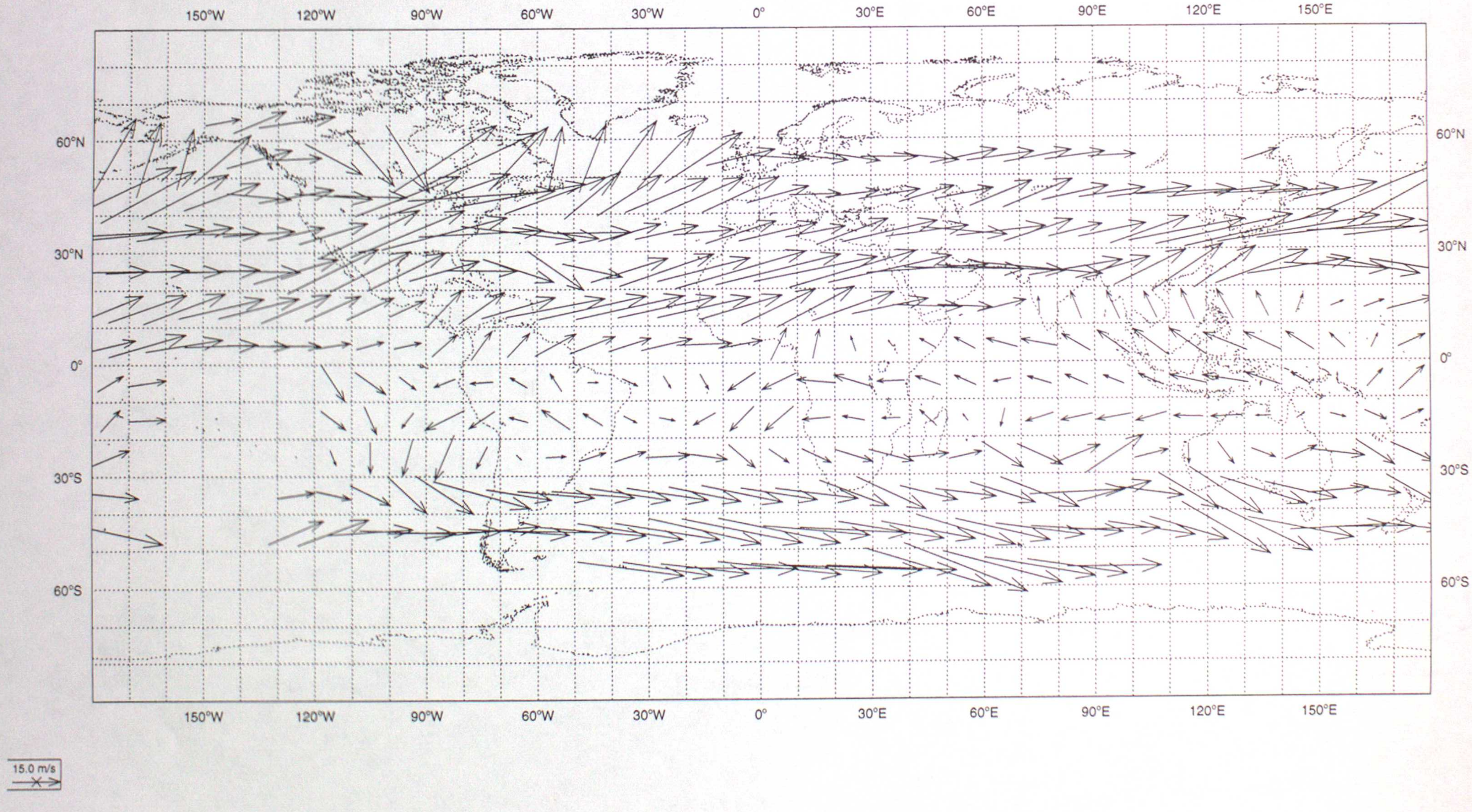

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 22. SATOB 101 - 400 hPa vector wind differences. FEBRUARY 2001
All observations
Arrows are plotted where greater than 10 obs are present

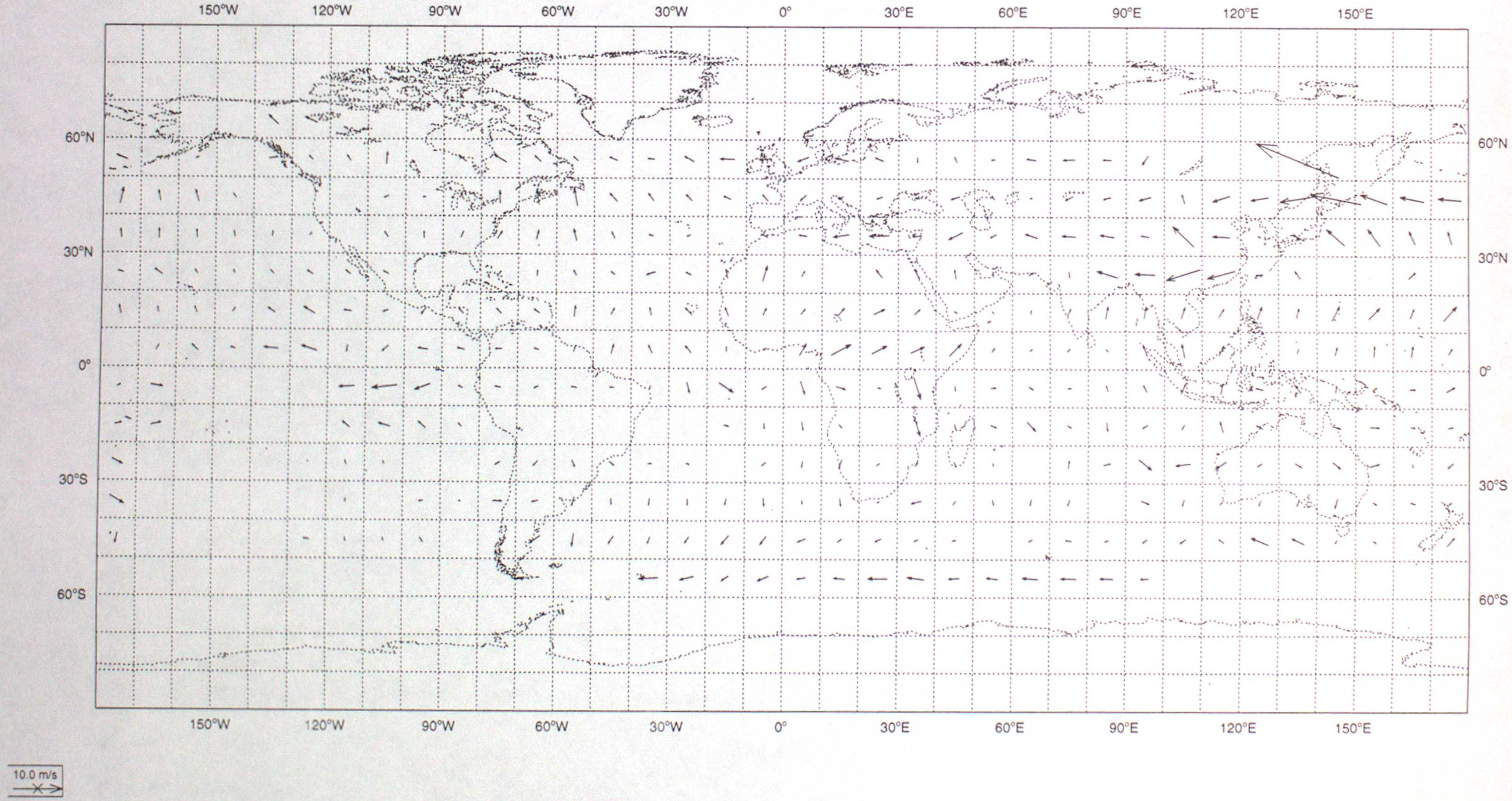

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10.0 m/s

Figure 23. SATOB 101 - 400 hPa mean O-B speed differences (ms-1). FEBRUARY 2001

All observations

Values are plotted where greater than 10 obs are present

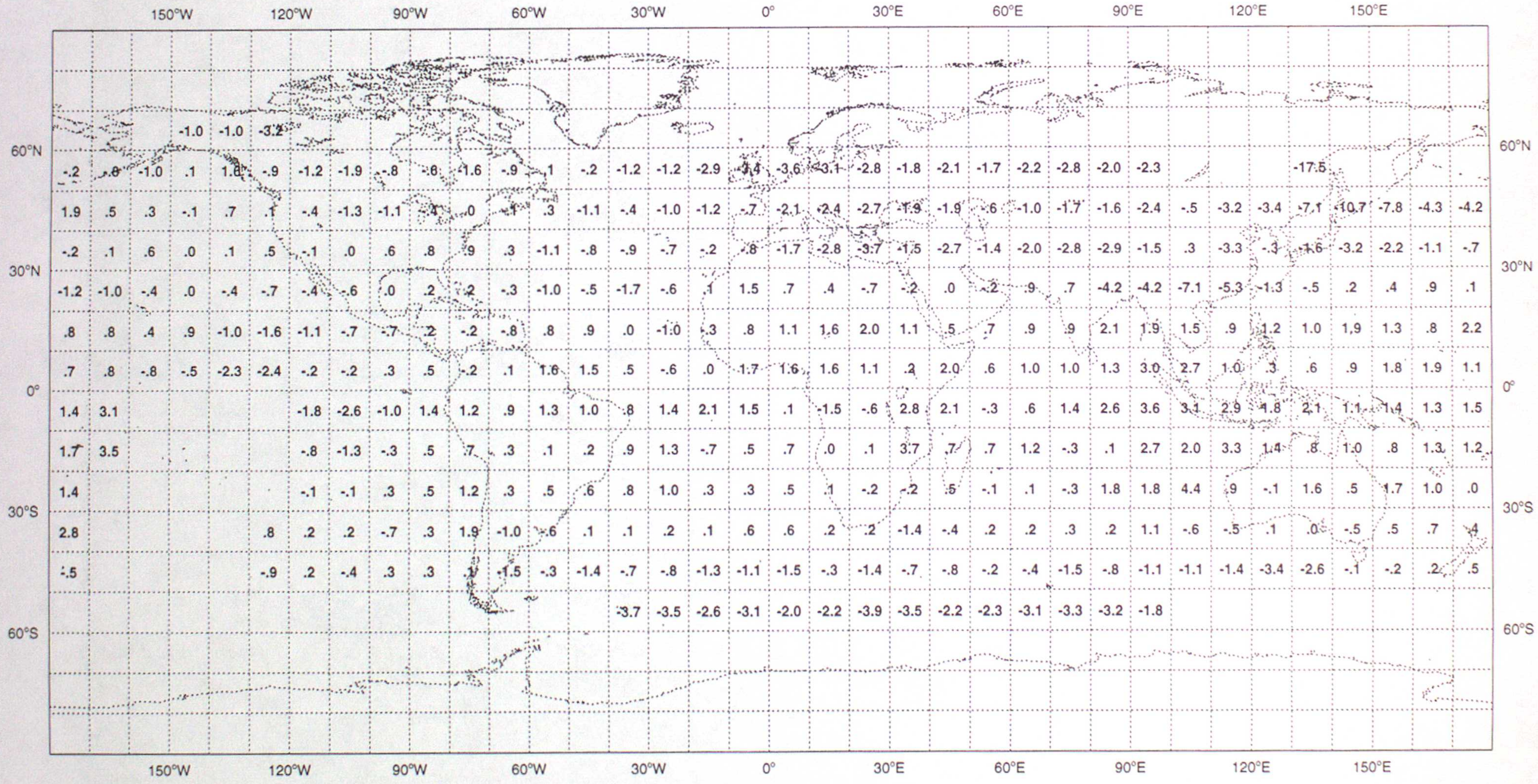
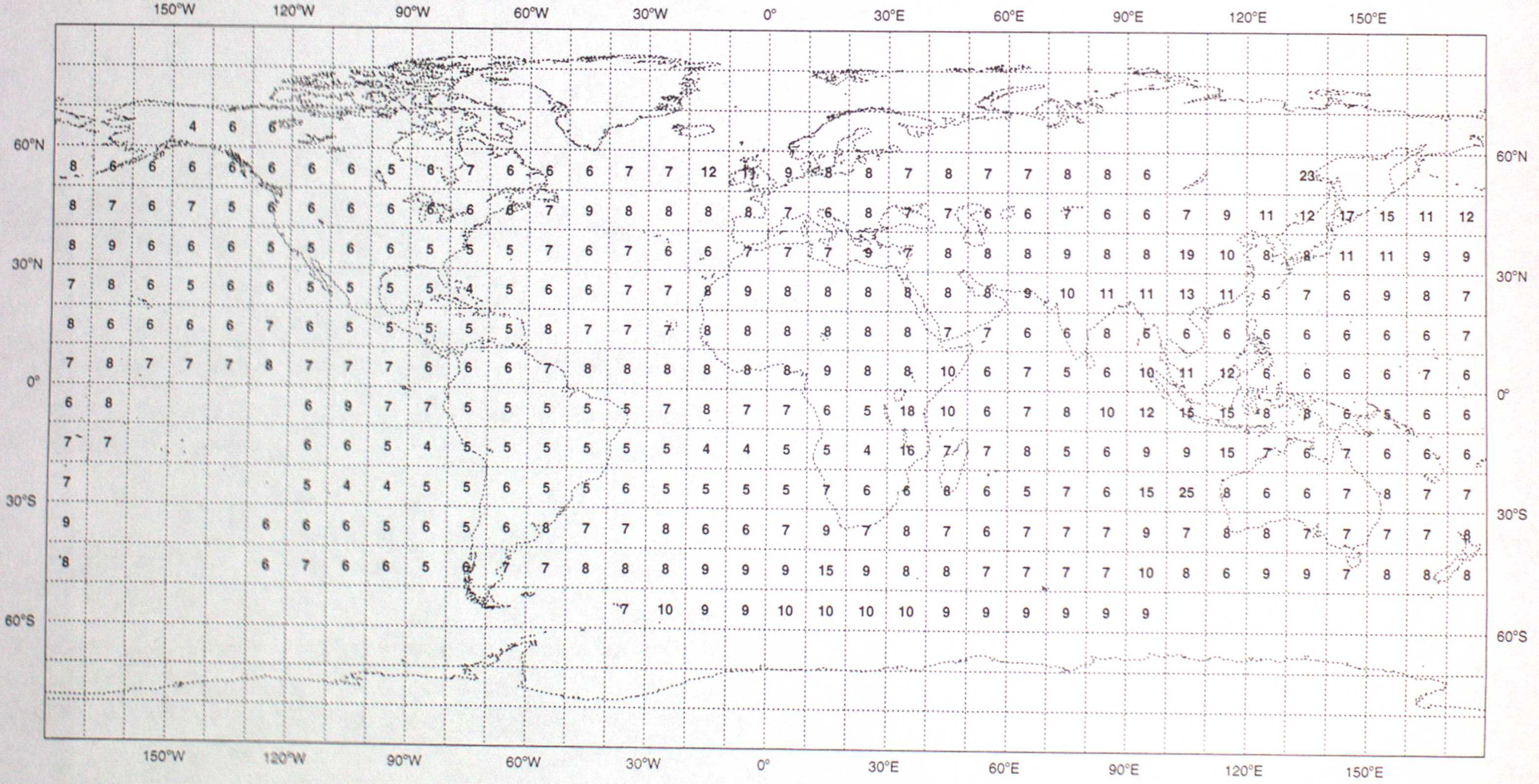

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
-1.0 -1.0 -3.2
-.2 .8 -1.0 .1 1.6 -.9 -1.2 -1.9 -.8 .6 -1.6 -.9 .1 -.2 -1.2 -1.2 -2.9 -3.4 -3.6 -3.1 -2.8 -1.8 -2.1 -1.7 -2.2 -2.8 -2.0 -2.3 -17.5
1.9 .5 .3 -.1 .7 .1 -.4 -1.3 -1.1 -.4 .0 -.1 .3 -1.1 -.4 -1.0 -1.2 -.7 -2.1 -2.4 -2.7 -1.9 -1.9 .6 -1.0 -1.7 -1.6 -2.4 -.5 -3.2 -3.4 -7.1 -10.7 -7.8 -4.3 -4.2
-.2 .1 .6 .0 .1 .5 -.1 .0 .6 .8 .9 .3 -1.1 -.8 -.9 -.7 -.2 .8 -1.7 -2.8 -3.7 -1.5 -2.7 -1.4 -2.0 -2.8 -2.9 -1.5 .3 -3.3 -.3 -1.6 -3.2 -2.2 -1.1 -.7
-1.2 -1.0 -.4 .0 -.4 -.7 -.4 -.6 .0 .2 .2 -.3 -1.0 -.5 -1.7 -.6 .1 1.5 .7 .4 -.7 -.2 .0 -.2 .9 .7 -4.2 -4.2 -7.1 -5.3 -1.3 -.5 .2 .4 .9 .1
.8 .8 .4 .9 -1.0 -1.6 -1.1 -.7 -.7 .2 -.2 -.8 .8 .9 .0 -1.0 -.3 .8 1.1 1.6 2.0 1.1 .5 .7 .9 .9 2.1 1.9 1.5 .9 1.2 1.0 1.9 1.3 .8 2.2
.7 .8 -.8 -.5 -2.3 -2.4 -.2 -.2 .3 .5 -.2 .1 1.6 1.5 .5 -.6 .0 1.7 1.6 1.6 1.1 .2 2.0 .6 1.0 1.0 1.3 3.0 2.7 1.0 .3 .6 .9 1.8 1.9 1.1
1.4 3.1 -1.8 -2.6 -1.0 1.4 1.2 .9 1.3 1.0 .8 1.4 2.1 1.5 .1 -1.5 -.6 2.8 2.1 -.3 .6 1.4 2.6 3.6 3.1 2.9 1.8 2.1 1.1 1.4 1.3 1.5
1.7 3.5 -.8 -1.3 -.3 .5 .7 .3 .1 .2 .9 1.3 -.7 .5 .7 .0 .1 3.7 .7 .7 1.2 -.3 .1 2.7 2.0 3.3 1.4 .8 1.0 .8 1.3 1.2
1.4 -.1 -.1 .3 .5 1.2 .3 .5 .6 .8 1.0 .3 .3 .5 .1 -.2 -.2 .5 -.1 .1 -.3 1.8 1.8 4.4 .9 -.1 1.6 .5 1.7 1.0 .0
2.8 .8 .2 .2 -.7 .3 1.9 -1.0 -.6 .1 .1 .2 .1 .6 .6 .2 .2 -1.4 -.4 .2 .2 .3 .2 1.1 -.6 -.5 .1 .0 -.5 .5 .7 .4
-.5 -.9 .2 -.4 .3 .3 .1 -1.5 -.3 -1.4 -.7 -.8 -1.3 -1.1 -1.5 -.3 -1.4 -.7 -.8 -.2 -.4 -1.5 -.8 -1.1 -1.1 -1.4 -3.4 -2.6 -.1 -.2 .2 .5
-3.7 -3.5 -2.6 -3.1 -2.0 -2.2 -3.9 -3.5 -2.2 -2.3 -3.1 -3.3 -3.2 -1.8

Figure 24. SATOB 101 - 400 hPa RMS O-B vector differences (ms-1). FEBRUARY 2001
All observations
Values are plotted where greater than 10 obs are present


150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
4 6 6
8 6 6 6 6 6 6 6 5 6 7 6 6 6 7 7 12 11 9 8 8 7 8 7 7 8 8 6 23
8 7 6 7 5 6 6 6 6 6 6 6 7 9 8 8 8 8 7 6 8 7 7 6 6 7 6 6 7 9 11 12 17 15 11 12
8 9 6 6 6 5 5 6 6 5 5 5 7 6 7 6 6 7 7 7 9 7 8 8 8 9 8 8 19 10 8 8 11 11 9 9
7 8 6 5 6 6 5 5 5 5 4 5 6 6 7 7 8 9 8 8 8 8 8 8 9 10 11 11 13 11 6 7 6 9 8 7
8 6 6 6 6 7 6 5 5 5 5 5 8 7 7 7 8 8 8 8 8 8 7 7 6 6 8 5 6 6 6 6 6 6 6 7
7 8 7 7 7 8 7 7 7 6 6 6 7 8 8 8 8 8 8 9 8 8 10 6 7 5 6 10 11 12 6 6 6 6 7 6
6 8 6 9 7 7 5 5 5 5 5 7 8 7 7 6 5 18 10 6 7 8 10 12 15 15 8 8 6 5 6 6
7 7 6 6 5 4 5 5 5 5 5 5 4 4 5 5 4 16 7 7 8 5 6 9 9 15 7 6 7 6 6 6
7 5 4 4 5 5 6 5 5 6 5 5 5 5 7 6 6 8 6 5 7 6 15 25 8 6 6 7 8 7 7
9 6 6 6 5 6 5 6 8 7 7 8 6 6 7 9 7 8 7 6 7 7 7 9 7 8 8 7 7 7 7 8
8 6 7 6 6 5 6 7 7 8 8 8 9 9 9 15 9 8 8 7 7 7 7 10 8 6 9 9 7 8 8 8
7 10 9 9 10 10 10 10 9 9 9 9 9 9

MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

MONTH: February 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from NOAA-15.

Standard of comparison :Background field from UKMO global model.

Selection Criteria :All soundings.

Data Extracted :Sounding channels (and approximate weighting function peaks, hPa)

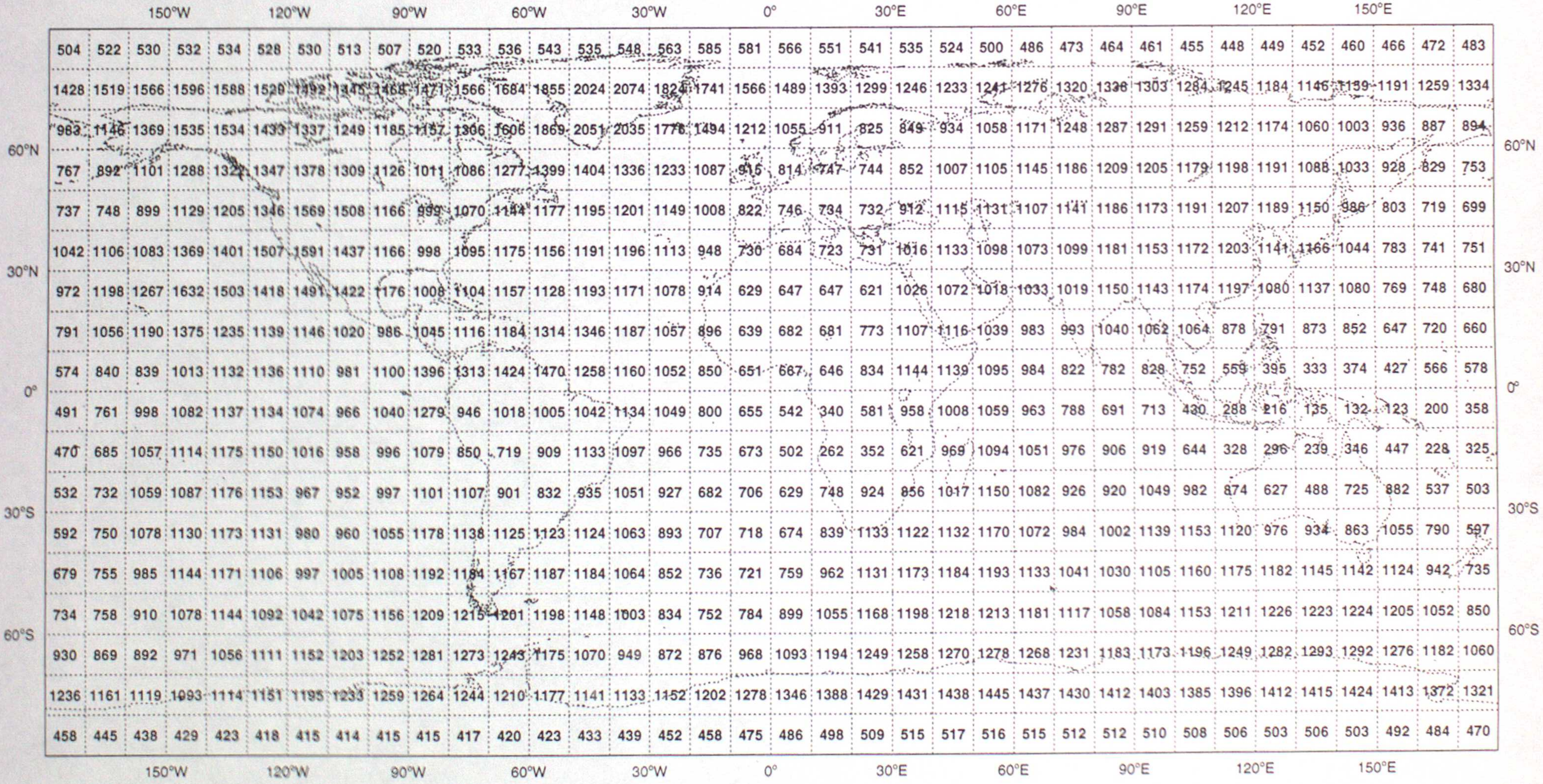
- HIRS8 (Surface)
- HIRS15 (700)
- HIRS11 (500-700)
- HIRS4 (400)
- AMSUA5 (700)
- AMSUA7 (300)
- AMSUA9 (100)

:Mean and standard deviation observation-minus-background brightness temperature differences

Figure 25. ATOVS mean daily count. FEBRUARY 2001

NOAA15, using all observations

Global average number of observations in 24 hours = 642237

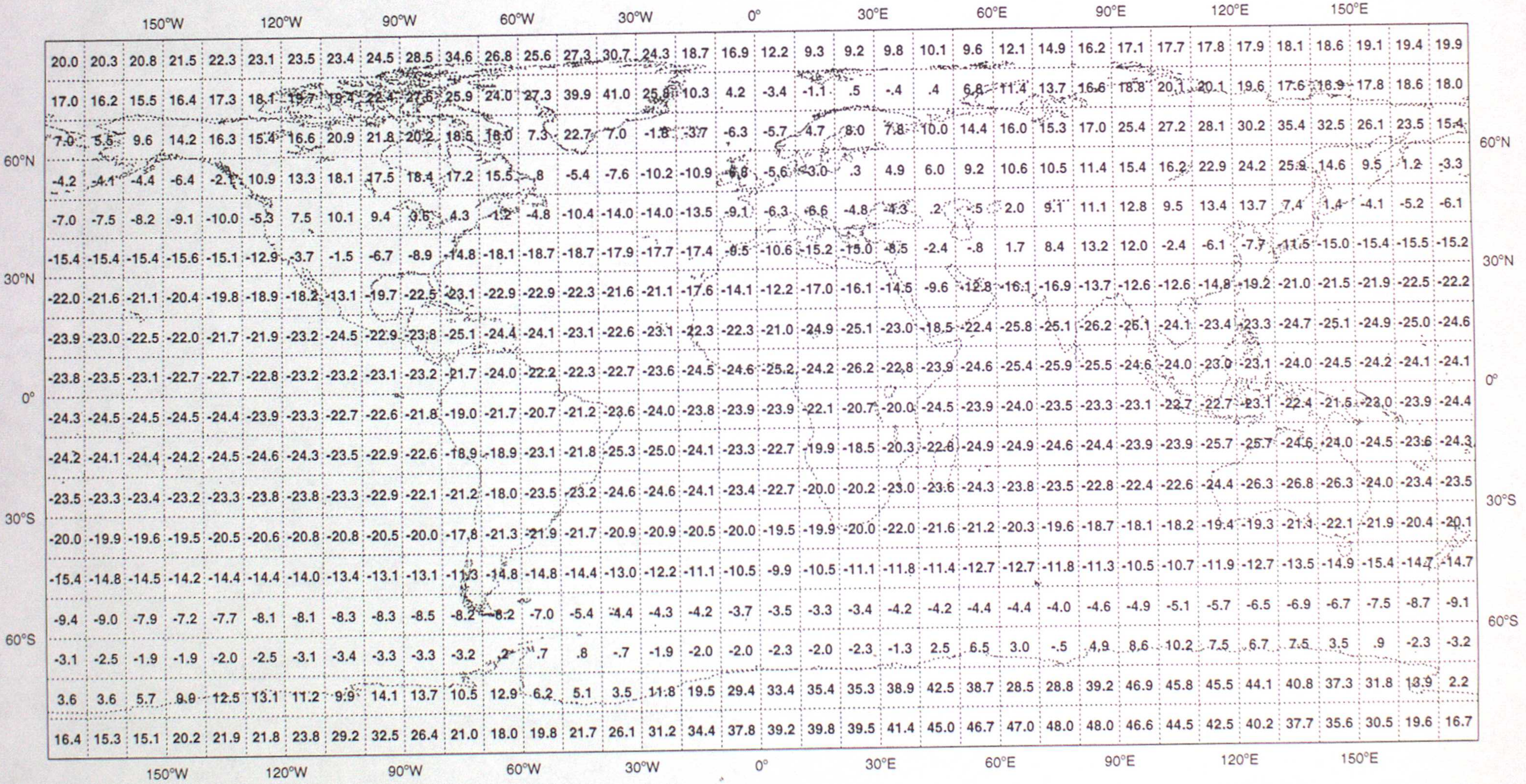


504	522	530	532	534	528	530	513	507	520	533	536	543	535	548	563	585	581	566	551	541	535	524	500	486	473	464	461	455	448	449	452	460	466	472	483
1428	1519	1566	1596	1588	1520	1492	1345	1468	1471	1566	1684	1855	2024	2074	1824	1741	1566	1489	1393	1299	1246	1233	1241	1276	1320	1336	1303	1284	1245	1184	1146	1159	1191	1259	1334
983	1146	1369	1535	1534	1433	1337	1249	1185	1157	1306	1606	1869	2051	2035	1778	1494	1212	1055	911	825	849	934	1058	1171	1248	1287	1291	1259	1212	1174	1060	1003	936	887	894
767	892	1101	1288	1322	1347	1378	1309	1126	1011	1086	1277	1399	1404	1336	1233	1087	915	814	747	744	852	1007	1105	1145	1186	1209	1205	1179	1198	1191	1088	1033	928	829	753
737	748	899	1129	1205	1346	1569	1508	1166	999	1070	1144	1177	1195	1201	1149	1008	822	746	734	732	912	1115	1131	1107	1141	1186	1173	1191	1207	1189	1150	986	803	719	699
1042	1106	1083	1369	1401	1507	1591	1437	1166	998	1095	1175	1156	1191	1196	1113	948	730	684	723	731	1016	1133	1098	1073	1099	1181	1153	1172	1203	1141	1166	1044	783	741	751
972	1198	1267	1632	1503	1418	1491	1422	1176	1008	1104	1157	1128	1193	1171	1078	914	629	647	647	621	1026	1072	1018	1033	1019	1150	1143	1174	1197	1080	1137	1080	769	748	680
791	1056	1190	1375	1235	1139	1146	1020	986	1045	1116	1184	1314	1346	1187	1057	896	639	682	681	773	1107	1116	1039	983	993	1040	1062	1064	878	791	873	852	647	720	660
574	840	839	1013	1132	1136	1110	981	1100	1396	1313	1424	1470	1258	1160	1052	850	651	667	646	834	1144	1139	1095	984	822	782	828	752	559	395	333	374	427	566	578
491	761	998	1082	1137	1134	1074	966	1040	1279	946	1018	1005	1042	1134	1049	800	655	542	340	581	958	1008	1059	963	788	691	713	430	288	216	135	132	123	200	358
470	685	1057	1114	1175	1150	1016	958	996	1079	850	719	909	1133	1097	966	735	673	502	262	352	621	969	1094	1051	976	906	919	644	328	296	239	346	447	228	325
532	732	1059	1087	1176	1153	967	952	997	1101	1107	901	832	935	1051	927	682	706	629	748	924	856	1017	1150	1082	926	920	1049	982	874	627	488	725	882	537	503
592	750	1078	1130	1173	1131	980	960	1055	1178	1138	1125	1123	1124	1063	893	707	718	674	839	1133	1122	1132	1170	1072	984	1002	1139	1153	1120	976	934	863	1055	790	597
679	755	985	1144	1171	1106	997	1005	1108	1192	1184	1167	1187	1184	1064	852	736	721	759	962	1131	1173	1184	1193	1133	1041	1030	1105	1160	1175	1182	1145	1142	1124	942	735
734	758	910	1078	1144	1092	1042	1075	1156	1209	1215	1201	1198	1148	1003	834	752	784	899	1055	1168	1198	1218	1213	1181	1117	1058	1084	1153	1211	1226	1223	1224	1205	1052	850
930	869	892	971	1056	1111	1152	1203	1252	1281	1273	1243	1175	1070	949	872	876	968	1093	1194	1249	1258	1270	1278	1268	1231	1183	1173	1196	1249	1282	1293	1292	1276	1182	1060
1236	1161	1119	1093	1114	1151	1195	1233	1259	1264	1244	1210	1177	1141	1133	1152	1202	1278	1346	1388	1429	1431	1438	1445	1437	1430	1412	1403	1385	1396	1412	1415	1424	1413	1372	1321
458	445	438	429	423	418	415	414	415	415	417	420	423	433	439	452	458	475	486	498	509	515	517	516	515	512	512	510	508	506	503	506	503	492	484	470

Figure 26. ATOVS MEAN O-B brightness temperature differences (deg C). FEBRUARY 2001

Channel: HIRS8 (Surface)

NOAA15, using all observations

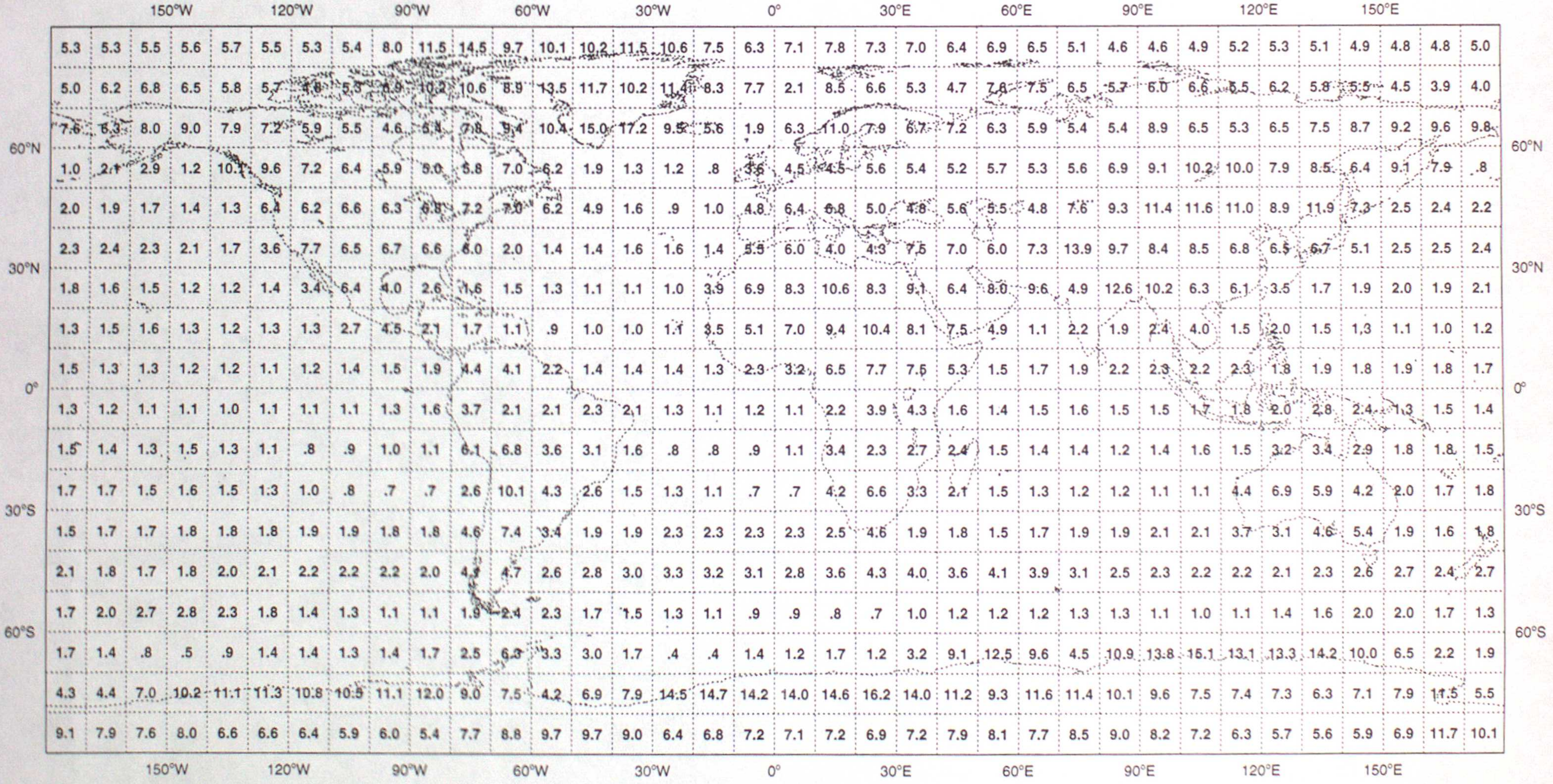


20.0	20.3	20.8	21.5	22.3	23.1	23.5	23.4	24.5	28.5	34.6	26.8	25.6	27.3	30.7	24.3	18.7	16.9	12.2	9.3	9.2	9.8	10.1	9.6	12.1	14.9	16.2	17.1	17.7	17.8	17.9	18.1	18.6	19.1	19.4	19.9
17.0	16.2	15.5	16.4	17.3	18.1	19.7	19.4	22.4	27.6	25.9	24.0	27.3	39.9	41.0	25.8	10.3	4.2	-3.4	-1.1	.5	-.4	.4	6.8	11.4	13.7	16.6	18.8	20.1	20.1	19.6	17.6	18.9	17.8	18.6	18.0
7.0	5.5	9.6	14.2	16.3	15.4	16.6	20.9	21.8	20.2	18.5	18.0	7.3	22.7	7.0	-1.8	-3.7	-6.3	-5.7	4.7	8.0	7.8	10.0	14.4	16.0	15.3	17.0	25.4	27.2	28.1	30.2	35.4	32.5	26.1	23.5	15.4
-4.2	-4.1	-4.4	-6.4	-2.1	10.9	13.3	18.1	17.5	18.4	17.2	15.5	.8	-5.4	-7.6	-10.2	-10.9	-6.8	-5.6	-3.0	.3	4.9	6.0	9.2	10.6	10.5	11.4	15.4	16.2	22.9	24.2	25.9	14.6	9.5	1.2	-3.3
-7.0	-7.5	-8.2	-9.1	-10.0	-5.3	7.5	10.1	9.4	3.6	4.3	-1.2	-4.8	-10.4	-14.0	-14.0	-13.5	-9.1	-6.3	-6.6	-4.8	-4.3	.2	-.5	2.0	9.1	11.1	12.8	9.5	13.4	13.7	7.4	1.4	-4.1	-5.2	-6.1
-15.4	-15.4	-15.4	-15.6	-15.1	-12.9	-3.7	-1.5	-6.7	-8.9	-14.8	-18.1	-18.7	-18.7	-17.9	-17.7	-17.4	-8.5	-10.6	-15.2	-15.0	-8.5	-2.4	-.8	1.7	8.4	13.2	12.0	-2.4	-6.1	-7.7	-11.5	-15.0	-15.4	-15.5	-15.2
-22.0	-21.6	-21.1	-20.4	-19.8	-18.9	-18.2	-13.1	-19.7	-22.5	-23.1	-22.9	-22.9	-22.3	-21.6	-21.1	-17.6	-14.1	-12.2	-17.0	-16.1	-14.5	-9.6	-12.8	-16.1	-16.9	-13.7	-12.6	-12.6	-14.8	-19.2	-21.0	-21.5	-21.9	-22.5	-22.2
-23.9	-23.0	-22.5	-22.0	-21.7	-21.9	-23.2	-24.5	-22.9	-23.8	-25.1	-24.4	-24.1	-23.1	-22.6	-23.1	-22.3	-22.3	-21.0	-24.9	-25.1	-23.0	-18.5	-22.4	-25.8	-25.1	-26.2	-26.1	-24.1	-23.4	-23.3	-24.7	-25.1	-24.9	-25.0	-24.6
-23.8	-23.5	-23.1	-22.7	-22.7	-22.8	-23.2	-23.2	-23.1	-23.2	-21.7	-24.0	-22.2	-22.3	-22.7	-23.6	-24.5	-24.6	-25.2	-24.2	-26.2	-22.8	-23.9	-24.6	-25.4	-25.9	-25.5	-24.6	-24.0	-23.0	-23.1	-24.0	-24.5	-24.2	-24.1	-24.1
-24.3	-24.5	-24.5	-24.5	-24.4	-23.9	-23.3	-22.7	-22.6	-21.8	-19.0	-21.7	-20.7	-21.2	-23.6	-24.0	-23.8	-23.9	-23.9	-22.1	-20.7	-20.0	-24.5	-23.9	-24.0	-23.5	-23.3	-23.1	-22.7	-22.7	-23.1	-22.4	-21.5	-23.0	-23.9	-24.4
-24.2	-24.1	-24.4	-24.2	-24.5	-24.6	-24.3	-23.5	-22.9	-22.6	-18.9	-18.9	-23.1	-21.8	-25.3	-25.0	-24.1	-23.3	-22.7	-19.9	-18.5	-20.3	-22.8	-24.9	-24.9	-24.6	-24.4	-23.9	-23.9	-25.7	-25.7	-24.6	-24.0	-24.5	-23.6	-24.3
-23.5	-23.3	-23.4	-23.2	-23.3	-23.8	-23.8	-23.3	-22.9	-22.1	-21.2	-18.0	-23.5	-23.2	-24.6	-24.6	-24.1	-23.4	-22.7	-20.0	-20.2	-23.0	-23.6	-24.3	-23.8	-23.5	-22.8	-22.4	-22.6	-24.4	-26.3	-26.8	-26.3	-24.0	-23.4	-23.5
-20.0	-19.9	-19.6	-19.5	-20.5	-20.6	-20.8	-20.8	-20.5	-20.0	-17.8	-21.3	-21.9	-21.7	-20.9	-20.9	-20.5	-20.0	-19.5	-19.9	-20.0	-22.0	-21.6	-21.2	-20.3	-19.6	-18.7	-18.1	-18.2	-19.4	-19.3	-21.3	-22.1	-21.9	-20.4	-20.1
-15.4	-14.8	-14.5	-14.2	-14.4	-14.4	-14.0	-13.4	-13.1	-13.1	-11.3	-14.8	-14.8	-14.4	-13.0	-12.2	-11.1	-10.5	-9.9	-10.5	-11.1	-11.8	-11.4	-12.7	-12.7	-11.8	-11.3	-10.5	-10.7	-11.9	-12.7	-13.5	-14.9	-15.4	-14.7	-14.7
-9.4	-9.0	-7.9	-7.2	-7.7	-8.1	-8.1	-8.3	-8.3	-8.5	-8.2	-8.2	-7.0	-5.4	-4.4	-4.3	-4.2	-3.7	-3.5	-3.3	-3.4	-4.2	-4.2	-4.4	-4.4	-4.0	-4.6	-4.9	-5.1	-5.7	-6.5	-6.9	-6.7	-7.5	-8.7	-9.1
-3.1	-2.5	-1.9	-1.9	-2.0	-2.5	-3.1	-3.4	-3.3	-3.3	-3.2	.2	.7	.8	-.7	-1.9	-2.0	-2.0	-2.3	-2.0	-2.3	-1.3	2.5	6.5	3.0	-.5	4.9	8.6	10.2	7.5	6.7	7.5	3.5	.9	-2.3	-3.2
3.6	3.6	5.7	8.8	12.5	13.1	11.2	9.9	14.1	13.7	10.5	12.9	6.2	5.1	3.5	11.8	19.5	29.4	33.4	35.4	35.3	38.9	42.5	38.7	28.5	28.8	39.2	46.9	45.8	45.5	44.1	40.8	37.3	31.8	13.9	2.2
16.4	15.3	15.1	20.2	21.9	21.8	23.8	29.2	32.5	26.4	21.0	18.0	19.8	21.7	26.1	31.2	34.4	37.8	39.2	39.8	39.5	41.4	45.0	46.7	47.0	48.0	48.0	46.6	44.5	42.5	40.2	37.7	35.6	30.5	19.6	16.7

Figure 27. ATOVS SD O-B brightness temperature differences (deg C). FEBRUARY 2001

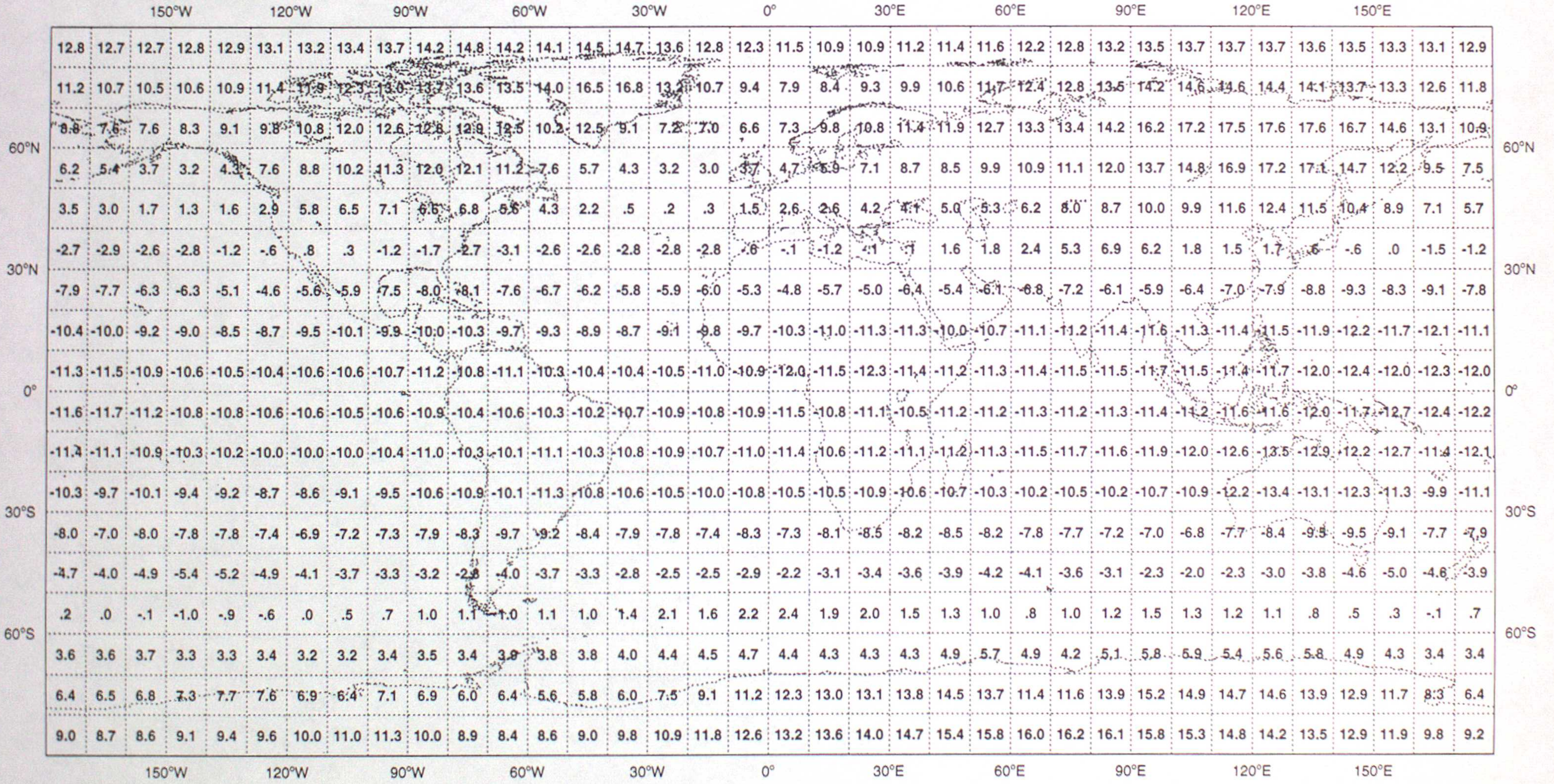
Channel: HIRS8 (Surface)

NOAA15, using all observations



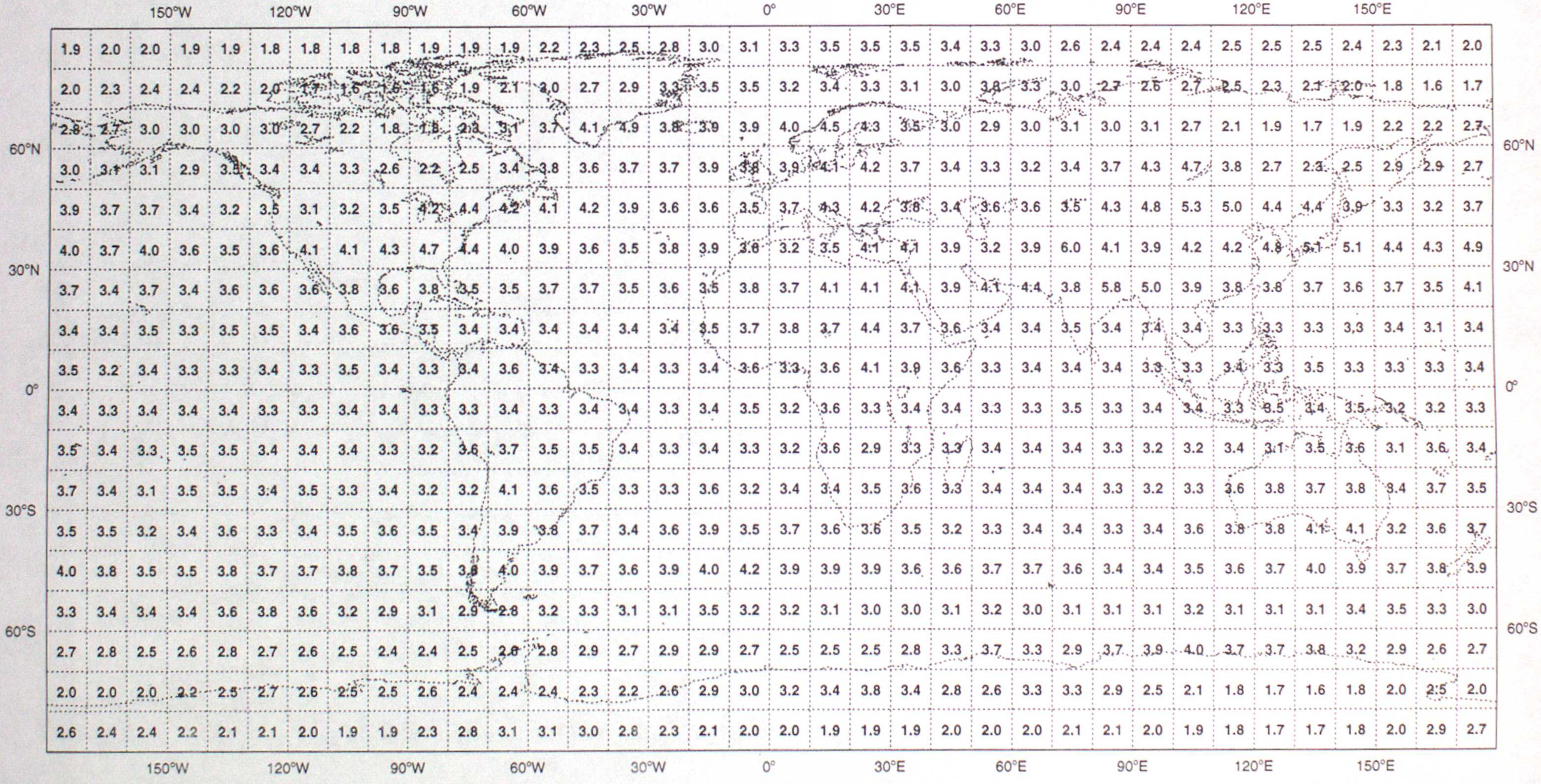
5.3	5.3	5.5	5.6	5.7	5.5	5.3	5.4	8.0	11.5	14.5	9.7	10.1	10.2	11.5	10.6	7.5	6.3	7.1	7.8	7.3	7.0	6.4	6.9	6.5	5.1	4.6	4.6	4.9	5.2	5.3	5.1	4.9	4.8	4.8	5.0
5.0	6.2	6.8	6.5	5.8	5.7	4.8	5.3	4.9	10.2	10.6	8.9	13.5	11.7	10.2	11.4	8.3	7.7	2.1	8.5	6.6	5.3	4.7	7.6	7.5	6.5	5.7	6.0	6.6	5.5	6.2	5.8	5.5	4.5	3.9	4.0
7.6	6.3	8.0	9.0	7.9	7.2	5.9	5.5	4.6	5.4	7.8	9.4	10.4	15.0	17.2	9.5	5.6	1.9	6.3	11.0	7.9	6.7	7.2	6.3	5.9	5.4	5.4	8.9	6.5	5.3	6.5	7.5	8.7	9.2	9.6	9.8
1.0	2.1	2.9	1.2	10.1	9.6	7.2	6.4	5.9	5.0	5.8	7.0	6.2	1.9	1.3	1.2	.8	3.6	4.5	4.5	5.6	5.4	5.2	5.7	5.3	5.6	6.9	9.1	10.2	10.0	7.9	8.5	6.4	9.1	7.9	.8
2.0	1.9	1.7	1.4	1.3	6.4	6.2	6.6	6.3	6.8	7.2	7.0	6.2	4.9	1.6	.9	1.0	4.8	6.4	6.8	5.0	4.8	5.6	5.5	4.8	7.6	9.3	11.4	11.6	11.0	8.9	11.9	7.3	2.5	2.4	2.2
2.3	2.4	2.3	2.1	1.7	3.6	7.7	6.5	6.7	6.6	6.0	2.0	1.4	1.4	1.6	1.6	1.4	5.5	6.0	4.0	4.3	7.5	7.0	6.0	7.3	13.9	9.7	8.4	8.5	6.8	6.5	6.7	5.1	2.5	2.5	2.4
1.8	1.6	1.5	1.2	1.2	1.4	3.4	6.4	4.0	2.6	1.6	1.5	1.3	1.1	1.1	1.0	3.9	6.9	8.3	10.6	8.3	9.1	6.4	8.0	9.6	4.9	12.6	10.2	6.3	6.1	3.5	1.7	1.9	2.0	1.9	2.1
1.3	1.5	1.6	1.3	1.2	1.3	1.3	2.7	4.5	2.1	1.7	1.1	.9	1.0	1.0	1.1	3.5	5.1	7.0	9.4	10.4	8.1	7.5	4.9	1.1	2.2	1.9	2.4	4.0	1.5	2.0	1.5	1.3	1.1	1.0	1.2
1.5	1.3	1.3	1.2	1.2	1.1	1.2	1.4	1.5	1.9	4.4	4.1	2.2	1.4	1.4	1.4	1.3	2.3	3.2	6.5	7.7	7.5	5.3	1.5	1.7	1.9	2.2	2.3	2.2	2.3	1.8	1.9	1.8	1.9	1.8	1.7
1.3	1.2	1.1	1.1	1.0	1.1	1.1	1.1	1.3	1.6	3.7	2.1	2.1	2.3	2.1	1.3	1.1	1.2	1.1	2.2	3.9	4.3	1.6	1.4	1.5	1.6	1.5	1.5	1.7	1.8	2.0	2.8	2.4	1.3	1.5	1.4
1.5	1.4	1.3	1.5	1.3	1.1	.8	.9	1.0	1.1	6.1	6.8	3.6	3.1	1.6	.8	.8	.9	1.1	3.4	2.3	2.7	2.4	1.5	1.4	1.4	1.2	1.4	1.6	1.5	3.2	3.4	2.9	1.8	1.8	1.5
1.7	1.7	1.5	1.6	1.5	1.3	1.0	.8	.7	.7	2.6	10.1	4.3	2.6	1.5	1.3	1.1	.7	.7	4.2	6.6	3.3	2.1	1.5	1.3	1.2	1.2	1.1	1.1	4.4	6.9	5.9	4.2	2.0	1.7	1.8
1.5	1.7	1.7	1.8	1.8	1.8	1.9	1.9	1.8	1.8	4.6	7.4	3.4	1.9	1.9	2.3	2.3	2.3	2.3	2.5	4.6	1.9	1.8	1.5	1.7	1.9	1.9	2.1	2.1	3.7	3.1	4.6	5.4	1.9	1.6	1.8
2.1	1.8	1.7	1.8	2.0	2.1	2.2	2.2	2.2	2.0	4.1	4.7	2.6	2.8	3.0	3.3	3.2	3.1	2.8	3.6	4.3	4.0	3.6	4.1	3.9	3.1	2.5	2.3	2.2	2.2	2.1	2.3	2.6	2.7	2.4	2.7
1.7	2.0	2.7	2.8	2.3	1.8	1.4	1.3	1.1	1.1	1.9	2.4	2.3	1.7	1.5	1.3	1.1	.9	.9	.8	.7	1.0	1.2	1.2	1.2	1.3	1.3	1.1	1.0	1.1	1.4	1.6	2.0	2.0	1.7	1.3
1.7	1.4	.8	.5	.9	1.4	1.4	1.3	1.4	1.7	2.5	6.3	3.3	3.0	1.7	.4	.4	1.4	1.2	1.7	1.2	3.2	9.1	12.5	9.6	4.5	10.9	13.8	15.1	13.1	13.3	14.2	10.0	6.5	2.2	1.9
4.3	4.4	7.0	10.2	11.1	11.3	10.8	10.5	11.1	12.0	9.0	7.5	4.2	6.9	7.9	14.5	14.7	14.2	14.0	14.6	16.2	14.0	11.2	9.3	11.6	11.4	10.1	9.6	7.5	7.4	7.3	6.3	7.1	7.9	11.5	5.5
9.1	7.9	7.6	8.0	6.6	6.6	6.4	5.9	6.0	5.4	7.7	8.8	9.7	9.7	9.0	6.4	6.8	7.2	7.1	7.2	6.9	7.2	7.9	8.1	7.7	8.5	9.0	8.2	7.2	6.3	5.7	5.6	5.9	6.9	11.7	10.1

Figure 28. ATOVS MEAN O-B brightness temperature differences (deg C). FEBRUARY 2001
Channel: HIRS15 (700 hPa)
NOAA15, using all observations



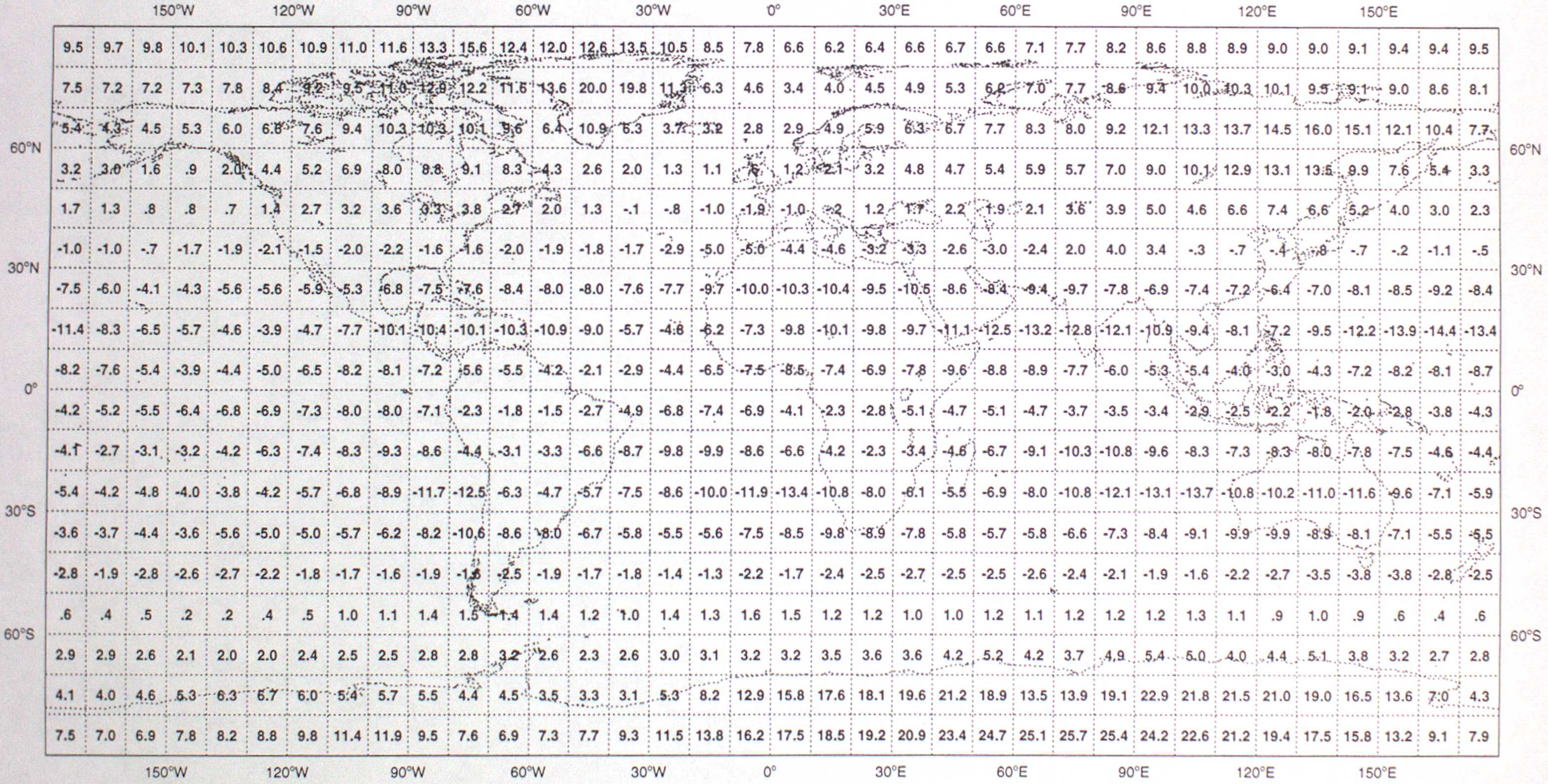
12.8	12.7	12.7	12.8	12.9	13.1	13.2	13.4	13.7	14.2	14.8	14.2	14.1	14.5	14.7	13.6	12.8	12.3	11.5	10.9	10.9	11.2	11.4	11.6	12.2	12.8	13.2	13.5	13.7	13.7	13.7	13.6	13.5	13.3	13.1	12.9
11.2	10.7	10.5	10.6	10.9	11.4	11.9	12.3	13.0	13.7	13.6	13.5	14.0	16.5	16.8	13.2	10.7	9.4	7.9	8.4	9.3	9.9	10.6	11.7	12.4	12.8	13.5	14.2	14.6	14.6	14.4	14.1	13.7	13.3	12.6	11.8
8.8	7.6	7.6	8.3	9.1	9.8	10.8	12.0	12.6	12.8	12.9	12.5	10.2	12.5	9.1	7.2	7.0	6.6	7.3	9.8	10.8	11.4	11.9	12.7	13.3	13.4	14.2	16.2	17.2	17.5	17.6	17.6	16.7	14.6	13.1	10.9
6.2	5.4	3.7	3.2	4.3	7.6	8.8	10.2	11.3	12.0	12.1	11.2	7.6	5.7	4.3	3.2	3.0	3.7	4.7	5.9	7.1	8.7	8.5	9.9	10.9	11.1	12.0	13.7	14.8	16.9	17.2	17.1	14.7	12.2	9.5	7.5
3.5	3.0	1.7	1.3	1.6	2.9	5.8	6.5	7.1	6.6	6.8	5.6	4.3	2.2	.5	.2	.3	1.5	2.6	2.6	4.2	4.1	5.0	5.3	6.2	8.0	8.7	10.0	9.9	11.6	12.4	11.5	10.4	8.9	7.1	5.7
-2.7	-2.9	-2.6	-2.8	-1.2	-.6	.8	.3	-1.2	-1.7	-2.7	-3.1	-2.6	-2.6	-2.8	-2.8	-2.8	-.6	-.1	-1.2	-.1	.1	1.6	1.8	2.4	5.3	6.9	6.2	1.8	1.5	1.7	.6	-.6	.0	-1.5	-1.2
-7.9	-7.7	-6.3	-6.3	-5.1	-4.6	-5.6	-5.9	-7.5	-8.0	-8.1	-7.6	-6.7	-6.2	-5.8	-5.9	-6.0	-5.3	-4.8	-5.7	-5.0	-6.4	-5.4	-6.1	-6.8	-7.2	-6.1	-5.9	-6.4	-7.0	-7.9	-8.8	-9.3	-8.3	-9.1	-7.8
-10.4	-10.0	-9.2	-9.0	-8.5	-8.7	-9.5	-10.1	-9.9	-10.0	-10.3	-9.7	-9.3	-8.9	-8.7	-9.1	-9.8	-9.7	-10.3	-11.0	-11.3	-11.3	-10.0	-10.7	-11.1	-11.2	-11.4	-11.6	-11.3	-11.4	-11.5	-11.9	-12.2	-11.7	-12.1	-11.1
-11.3	-11.5	-10.9	-10.6	-10.5	-10.4	-10.6	-10.6	-10.7	-11.2	-10.8	-11.1	-10.3	-10.4	-10.4	-10.5	-11.0	-10.9	-12.0	-11.5	-12.3	-11.4	-11.2	-11.3	-11.4	-11.5	-11.5	-11.7	-11.5	-11.4	-11.7	-12.0	-12.4	-12.0	-12.3	-12.0
-11.6	-11.7	-11.2	-10.8	-10.8	-10.6	-10.6	-10.5	-10.6	-10.9	-10.4	-10.6	-10.3	-10.2	-10.7	-10.9	-10.8	-10.9	-11.5	-10.8	-11.1	-10.5	-11.2	-11.2	-11.3	-11.2	-11.3	-11.4	-11.2	-11.6	-11.6	-12.0	-11.7	-12.7	-12.4	-12.2
-11.4	-11.1	-10.9	-10.3	-10.2	-10.0	-10.0	-10.0	-10.4	-11.0	-10.3	-10.1	-11.1	-10.3	-10.8	-10.9	-10.7	-11.0	-11.4	-10.6	-11.2	-11.1	-11.2	-11.3	-11.5	-11.7	-11.6	-11.9	-12.0	-12.6	-13.5	-12.9	-12.2	-12.7	-11.4	-12.1
-10.3	-9.7	-10.1	-9.4	-9.2	-8.7	-8.6	-9.1	-9.5	-10.6	-10.9	-10.1	-11.3	-10.8	-10.6	-10.5	-10.0	-10.8	-10.5	-10.5	-10.9	-10.6	-10.7	-10.3	-10.2	-10.5	-10.2	-10.7	-10.9	-12.2	-13.4	-13.1	-12.3	-11.3	-9.9	-11.1
-8.0	-7.0	-8.0	-7.8	-7.8	-7.4	-6.9	-7.2	-7.3	-7.9	-8.3	-9.7	-9.2	-8.4	-7.9	-7.8	-7.4	-8.3	-7.3	-8.1	-8.5	-8.2	-8.5	-8.2	-7.8	-7.7	-7.2	-7.0	-6.8	-7.7	-8.4	-9.5	-9.5	-9.1	-7.7	-7.9
-4.7	-4.0	-4.9	-5.4	-5.2	-4.9	-4.1	-3.7	-3.3	-3.2	-2.8	-4.0	-3.7	-3.3	-2.8	-2.5	-2.5	-2.9	-2.2	-3.1	-3.4	-3.6	-3.9	-4.2	-4.1	-3.6	-3.1	-2.3	-2.0	-2.3	-3.0	-3.8	-4.6	-5.0	-4.6	-3.9
.2	.0	-.1	-1.0	-.9	-.6	.0	.5	.7	1.0	1.1	1.0	1.1	1.0	1.4	2.1	1.6	2.2	2.4	1.9	2.0	1.5	1.3	1.0	.8	1.0	1.2	1.5	1.3	1.2	1.1	.8	.5	.3	-.1	.7
3.6	3.6	3.7	3.3	3.3	3.4	3.2	3.2	3.4	3.5	3.4	3.8	3.8	3.8	4.0	4.4	4.5	4.7	4.4	4.3	4.3	4.3	4.9	5.7	4.9	4.2	5.1	5.8	5.9	5.4	5.6	5.8	4.9	4.3	3.4	3.4
6.4	6.5	6.8	7.3	7.7	7.6	6.9	6.4	7.1	6.9	6.0	6.4	5.6	5.8	6.0	7.5	9.1	11.2	12.3	13.0	13.1	13.8	14.5	13.7	11.4	11.6	13.9	15.2	14.9	14.7	14.6	13.9	12.9	11.7	8.3	6.4
9.0	8.7	8.6	9.1	9.4	9.6	10.0	11.0	11.3	10.0	8.9	8.4	8.6	9.0	9.8	10.9	11.8	12.6	13.2	13.6	14.0	14.7	15.4	15.8	16.0	16.2	16.1	15.8	15.3	14.8	14.2	13.5	12.9	11.9	9.8	9.2

Figure 29. ATOVS SD O-B brightness temperature differences (deg C). FEBRUARY 2001
Channel: HIRS15 (700 hPa)
NOAA15, using all observations



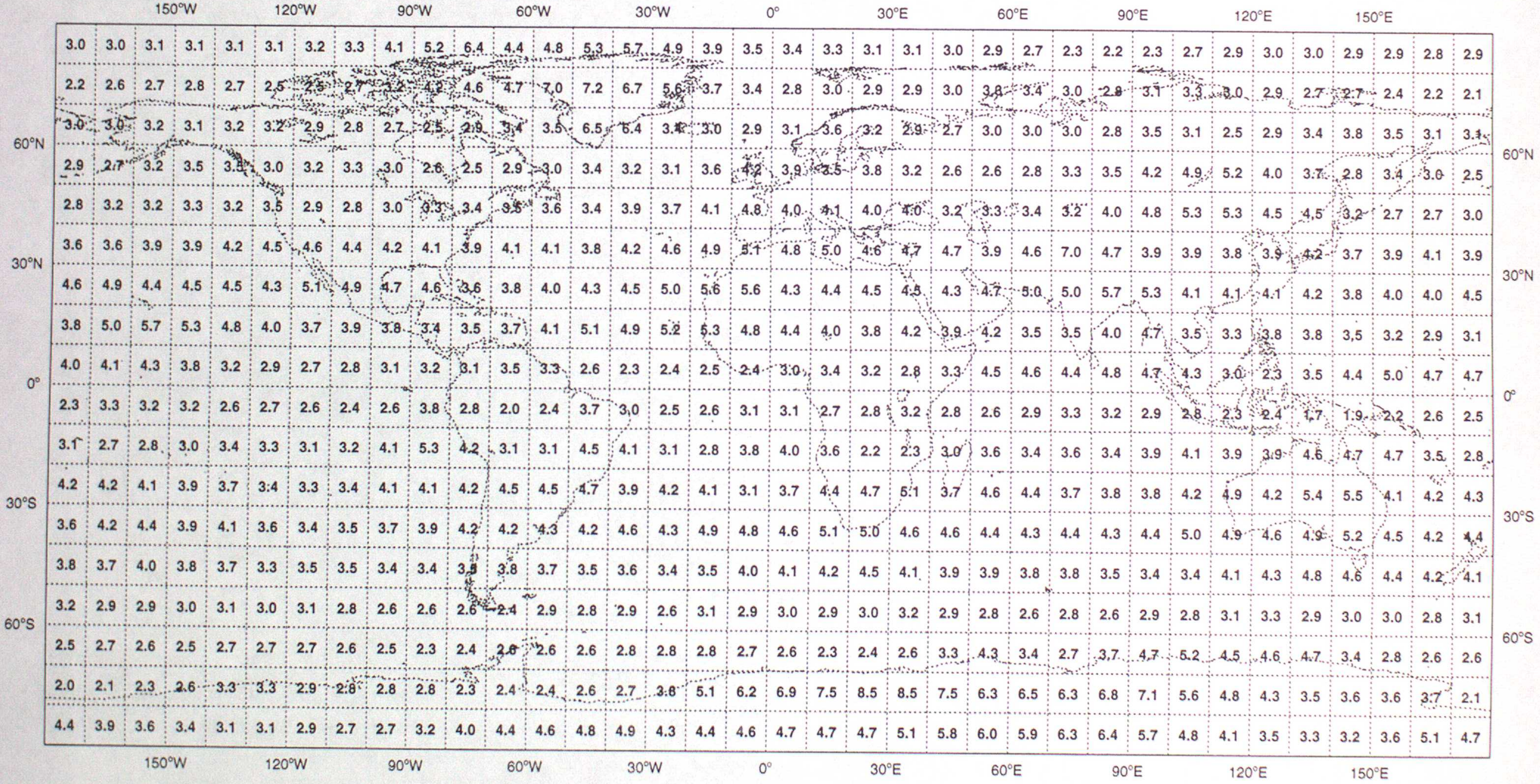
1.9	2.0	2.0	1.9	1.9	1.8	1.8	1.8	1.8	1.9	1.9	1.9	2.2	2.3	2.5	2.8	3.0	3.1	3.3	3.5	3.5	3.5	3.4	3.3	3.0	2.6	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.3	2.1	2.0
2.0	2.3	2.4	2.4	2.2	2.0	1.7	1.6	1.6	1.6	1.9	2.1	3.0	2.7	2.9	3.3	3.5	3.5	3.2	3.4	3.3	3.1	3.0	3.8	3.3	3.0	2.7	2.6	2.7	2.5	2.3	2.1	2.0	1.8	1.6	1.7
2.8	2.7	3.0	3.0	3.0	3.0	2.7	2.2	1.8	1.8	2.3	3.1	3.7	4.1	4.9	3.8	3.9	3.9	4.0	4.5	4.3	3.5	3.0	2.9	3.0	3.1	3.0	3.1	2.7	2.1	1.9	1.7	1.9	2.2	2.2	2.7
3.0	3.1	3.1	2.9	3.5	3.4	3.4	3.3	2.6	2.2	2.5	3.4	3.8	3.6	3.7	3.7	3.9	3.8	3.9	4.1	4.2	3.7	3.4	3.3	3.2	3.4	3.7	4.3	4.7	3.8	2.7	2.3	2.5	2.9	2.9	2.7
3.9	3.7	3.7	3.4	3.2	3.5	3.1	3.2	3.5	4.2	4.4	4.2	4.1	4.2	3.9	3.6	3.6	3.5	3.7	4.3	4.2	3.8	3.4	3.6	3.6	3.5	4.3	4.8	5.3	5.0	4.4	4.4	3.9	3.3	3.2	3.7
4.0	3.7	4.0	3.6	3.5	3.6	4.1	4.1	4.3	4.7	4.4	4.0	3.9	3.6	3.5	3.8	3.9	3.6	3.2	3.5	4.1	4.1	3.9	3.2	3.9	6.0	4.1	3.9	4.2	4.2	4.8	5.1	5.1	4.4	4.3	4.9
3.7	3.4	3.7	3.4	3.6	3.6	3.6	3.8	3.6	3.8	3.5	3.5	3.7	3.7	3.5	3.6	3.5	3.8	3.7	4.1	4.1	4.1	3.9	4.1	4.4	3.8	5.8	5.0	3.9	3.8	3.8	3.7	3.6	3.7	3.5	4.1
3.4	3.4	3.5	3.3	3.5	3.5	3.4	3.6	3.6	3.5	3.4	3.4	3.4	3.4	3.4	3.4	3.5	3.7	3.8	3.7	4.4	3.7	3.6	3.4	3.4	3.5	3.4	3.4	3.4	3.3	3.3	3.3	3.3	3.4	3.1	3.4
3.5	3.2	3.4	3.3	3.3	3.4	3.3	3.5	3.4	3.3	3.4	3.6	3.4	3.3	3.4	3.3	3.4	3.6	3.3	3.6	4.1	3.9	3.6	3.3	3.4	3.4	3.4	3.3	3.3	3.4	3.3	3.5	3.3	3.3	3.3	3.4
3.4	3.3	3.4	3.4	3.4	3.3	3.3	3.4	3.4	3.3	3.3	3.4	3.3	3.4	3.4	3.3	3.4	3.5	3.2	3.6	3.3	3.4	3.4	3.3	3.3	3.5	3.3	3.4	3.4	3.3	3.5	3.4	3.5	3.2	3.2	3.3
3.5	3.4	3.3	3.5	3.5	3.4	3.4	3.4	3.3	3.2	3.6	3.7	3.5	3.5	3.4	3.3	3.4	3.3	3.2	3.6	2.9	3.3	3.3	3.4	3.4	3.4	3.3	3.2	3.2	3.4	3.1	3.5	3.6	3.1	3.6	3.4
3.7	3.4	3.1	3.5	3.5	3.4	3.5	3.3	3.4	3.2	3.2	4.1	3.6	3.5	3.3	3.3	3.6	3.2	3.4	3.4	3.5	3.6	3.3	3.4	3.4	3.4	3.3	3.2	3.3	3.6	3.8	3.7	3.8	3.4	3.7	3.5
3.5	3.5	3.2	3.4	3.6	3.3	3.4	3.5	3.6	3.5	3.4	3.9	3.8	3.7	3.4	3.6	3.9	3.5	3.7	3.6	3.6	3.5	3.2	3.3	3.4	3.4	3.3	3.4	3.6	3.8	3.8	4.1	4.1	3.2	3.6	3.7
4.0	3.8	3.5	3.5	3.8	3.7	3.7	3.8	3.7	3.5	3.8	4.0	3.9	3.7	3.6	3.9	4.0	4.2	3.9	3.9	3.9	3.6	3.6	3.7	3.7	3.6	3.4	3.4	3.5	3.6	3.7	4.0	3.9	3.7	3.8	3.9
3.3	3.4	3.4	3.4	3.6	3.8	3.6	3.2	2.9	3.1	2.9	2.8	3.2	3.3	3.1	3.1	3.5	3.2	3.2	3.1	3.0	3.0	3.1	3.2	3.0	3.1	3.1	3.1	3.2	3.1	3.1	3.1	3.4	3.5	3.3	3.0
2.7	2.8	2.5	2.6	2.8	2.7	2.6	2.5	2.4	2.4	2.5	2.6	2.8	2.9	2.7	2.9	2.9	2.7	2.5	2.5	2.5	2.8	3.3	3.7	3.3	2.9	3.7	3.9	4.0	3.7	3.7	3.8	3.2	2.9	2.6	2.7
2.0	2.0	2.0	2.2	2.5	2.7	2.6	2.5	2.5	2.6	2.4	2.4	2.4	2.3	2.2	2.6	2.9	3.0	3.2	3.4	3.8	3.4	2.8	2.6	3.3	3.3	2.9	2.5	2.1	1.8	1.7	1.6	1.8	2.0	2.5	2.0
2.6	2.4	2.4	2.2	2.1	2.1	2.0	1.9	1.9	2.3	2.8	3.1	3.1	3.0	2.8	2.3	2.1	2.0	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.0	1.9	1.8	1.7	1.7	1.8	2.0	2.9	2.7

Figure 30. ATOVS MEAN O-B brightness temperature differences (deg C). FEBRUARY 2001
Channel: HIRS11 (500 - 700 hPa)
NOAA15, using all observations



9.5	9.7	9.8	10.1	10.3	10.6	10.9	11.0	11.6	13.3	15.6	12.4	12.0	12.6	13.5	10.5	8.5	7.8	6.6	6.2	6.4	6.6	6.7	6.6	7.1	7.7	8.2	8.6	8.8	8.9	9.0	9.0	9.1	9.4	9.4	9.5
7.5	7.2	7.2	7.3	7.8	8.4	9.2	9.5	11.0	12.9	12.2	11.6	13.6	20.0	19.8	11.3	6.3	4.6	3.4	4.0	4.5	4.9	5.3	6.2	7.0	7.7	8.6	9.4	10.0	10.3	10.1	9.5	9.1	9.0	8.6	8.1
5.4	4.3	4.5	5.3	6.0	6.8	7.6	9.4	10.3	10.3	10.1	9.6	6.4	10.9	6.3	3.7	3.2	2.8	2.9	4.9	5.9	6.3	6.7	7.7	8.3	8.0	9.2	12.1	13.3	13.7	14.5	16.0	15.1	12.1	10.4	7.7
3.2	3.0	1.6	.9	2.0	4.4	5.2	6.9	8.0	8.8	9.1	8.3	4.3	2.6	2.0	1.3	1.1	.6	1.2	2.1	3.2	4.8	4.7	5.4	5.9	5.7	7.0	9.0	10.1	12.9	13.1	13.5	9.9	7.6	5.4	3.3
1.7	1.3	.8	.8	.7	1.4	2.7	3.2	3.6	3.3	3.8	2.7	2.0	1.3	-.1	-.8	-1.0	-1.9	-1.0	-.2	1.2	1.7	2.2	1.9	2.1	3.6	3.9	5.0	4.6	6.6	7.4	6.6	5.2	4.0	3.0	2.3
-1.0	-1.0	-.7	-1.7	-1.9	-2.1	-1.5	-2.0	-2.2	-1.6	-1.6	-2.0	-1.9	-1.8	-1.7	-2.9	-5.0	-5.0	-4.4	-4.6	-3.2	-3.3	-2.6	-3.0	-2.4	2.0	4.0	3.4	-.3	-.7	-.4	-.8	-.7	-.2	-1.1	-.5
-7.5	-6.0	-4.1	-4.3	-5.6	-5.6	-5.9	-5.3	-6.8	-7.5	-7.6	-8.4	-8.0	-8.0	-7.6	-7.7	-9.7	-10.0	-10.3	-10.4	-9.5	-10.5	-8.6	-8.4	-9.4	-9.7	-7.8	-6.9	-7.4	-7.2	-6.4	-7.0	-8.1	-8.5	-9.2	-8.4
-11.4	-8.3	-6.5	-5.7	-4.6	-3.9	-4.7	-7.7	-10.1	-10.4	-10.1	-10.3	-10.9	-9.0	-5.7	-4.8	-6.2	-7.3	-9.8	-10.1	-9.8	-9.7	-11.1	-12.5	-13.2	-12.8	-12.1	-10.9	-9.4	-8.1	-7.2	-9.5	-12.2	-13.9	-14.4	-13.4
-8.2	-7.6	-5.4	-3.9	-4.4	-5.0	-6.5	-8.2	-8.1	-7.2	-5.6	-5.5	-4.2	-2.1	-2.9	-4.4	-6.5	-7.5	-8.5	-7.4	-6.9	-7.8	-9.6	-8.8	-8.9	-7.7	-6.0	-5.3	-5.4	-4.0	-3.0	-4.3	-7.2	-8.2	-8.1	-8.7
-4.2	-5.2	-5.5	-6.4	-6.8	-6.9	-7.3	-8.0	-8.0	-7.1	-2.3	-1.8	-1.5	-2.7	-4.9	-6.8	-7.4	-6.9	-4.1	-2.3	-2.8	-5.1	-4.7	-5.1	-4.7	-3.7	-3.5	-3.4	-2.9	-2.5	-2.2	-1.8	-2.0	-2.8	-3.8	-4.3
-4.1	-2.7	-3.1	-3.2	-4.2	-6.3	-7.4	-8.3	-9.3	-8.6	-4.4	-3.1	-3.3	-6.6	-8.7	-9.8	-9.9	-8.6	-6.6	-4.2	-2.3	-3.4	-4.6	-6.7	-9.1	-10.3	-10.8	-9.6	-8.3	-7.3	-8.3	-8.0	-7.8	-7.5	-4.6	-4.4
-5.4	-4.2	-4.8	-4.0	-3.8	-4.2	-5.7	-6.8	-8.9	-11.7	-12.5	-6.3	-4.7	-5.7	-7.5	-8.6	-10.0	-11.9	-13.4	-10.8	-8.0	-6.1	-5.5	-6.9	-8.0	-10.8	-12.1	-13.1	-13.7	-10.8	-10.2	-11.0	-11.6	-9.6	-7.1	-5.9
-3.6	-3.7	-4.4	-3.6	-5.6	-5.0	-5.0	-5.7	-6.2	-8.2	-10.6	-8.6	-8.0	-6.7	-5.8	-5.5	-5.6	-7.5	-8.5	-9.8	-8.9	-7.8	-5.8	-5.7	-5.8	-6.6	-7.3	-8.4	-9.1	-9.9	-9.9	-8.9	-8.1	-7.1	-5.5	-5.5
-2.8	-1.9	-2.8	-2.6	-2.7	-2.2	-1.8	-1.7	-1.6	-1.9	-1.6	-2.5	-1.9	-1.7	-1.8	-1.4	-1.3	-2.2	-1.7	-2.4	-2.5	-2.7	-2.5	-2.5	-2.6	-2.4	-2.1	-1.9	-1.6	-2.2	-2.7	-3.5	-3.8	-3.8	-2.8	-2.5
.6	.4	.5	.2	.2	.4	.5	1.0	1.1	1.4	1.5	1.4	1.4	1.2	1.0	1.4	1.3	1.6	1.5	1.2	1.2	1.0	1.0	1.2	1.1	1.2	1.2	1.2	1.3	1.1	.9	1.0	.9	.6	.4	.6
2.9	2.9	2.6	2.1	2.0	2.0	2.4	2.5	2.5	2.8	2.8	3.2	2.6	2.3	2.6	3.0	3.1	3.2	3.2	3.5	3.6	3.6	4.2	5.2	4.2	3.7	4.9	5.4	5.0	4.0	4.4	5.1	3.8	3.2	2.7	2.8
4.1	4.0	4.6	5.3	6.3	6.7	6.0	5.4	5.7	5.5	4.4	4.5	3.5	3.3	3.1	5.3	8.2	12.9	15.8	17.6	18.1	19.6	21.2	18.9	13.5	13.9	19.1	22.9	21.8	21.5	21.0	19.0	16.5	13.6	7.0	4.3
7.5	7.0	6.9	7.8	8.2	8.8	9.8	11.4	11.9	9.5	7.6	6.9	7.3	7.7	9.3	11.5	13.8	16.2	17.5	18.5	19.2	20.9	23.4	24.7	25.1	25.7	25.4	24.2	22.6	21.2	19.4	17.5	15.8	13.2	9.1	7.9

Figure 31. ATOVS SD O-B brightness temperature differences (deg C). FEBRUARY 2001
Channel: HIRS11 (500 - 700 hPa)
NOAA15, using all observations

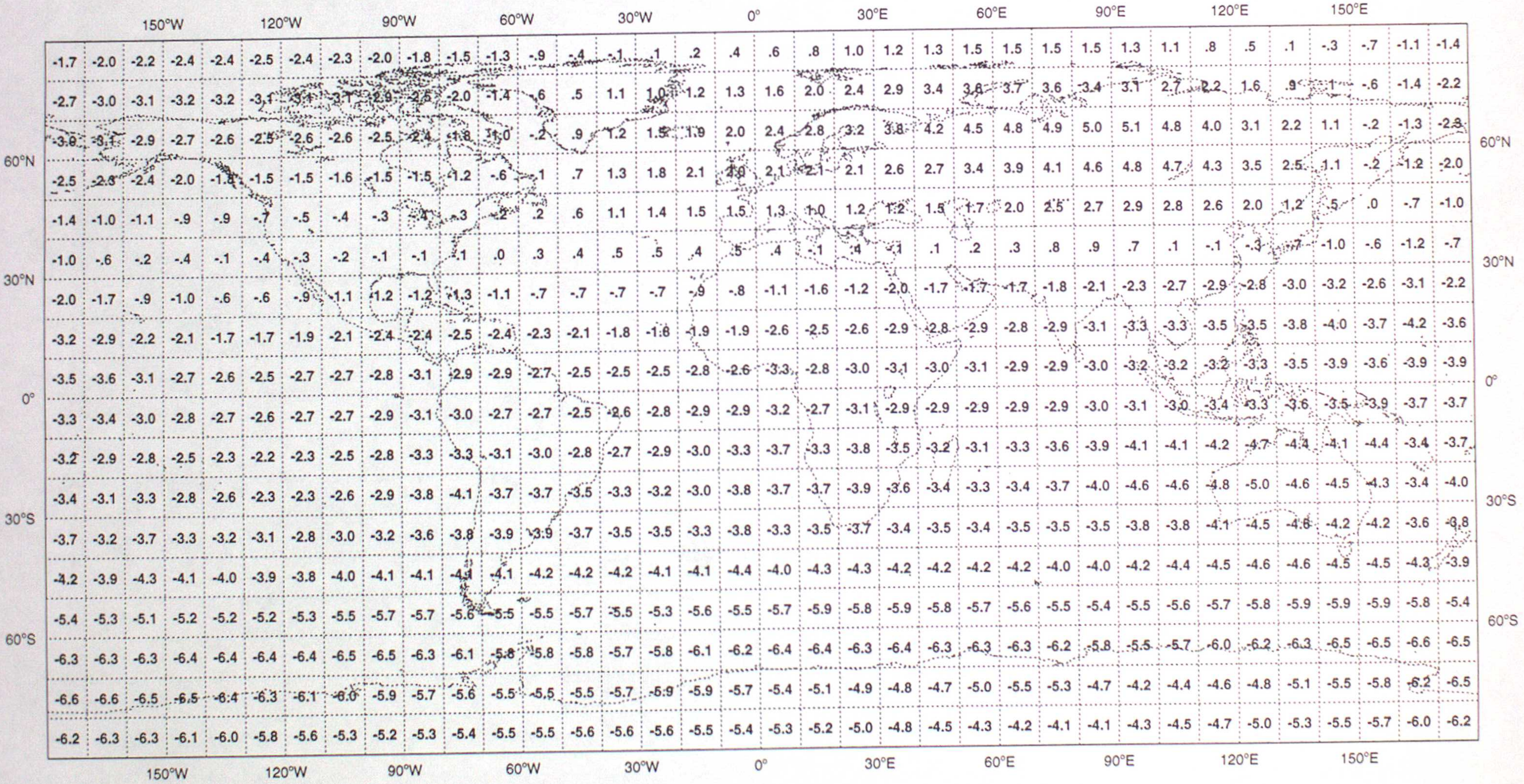


3.0	3.0	3.1	3.1	3.1	3.1	3.2	3.3	4.1	5.2	6.4	4.4	4.8	5.3	5.7	4.9	3.9	3.5	3.4	3.3	3.1	3.1	3.0	2.9	2.7	2.3	2.2	2.3	2.7	2.9	3.0	3.0	2.9	2.9	2.8	2.9
2.2	2.6	2.7	2.8	2.7	2.5	2.5	2.7	3.2	4.2	4.6	4.7	7.0	7.2	6.7	5.6	3.7	3.4	2.8	3.0	2.9	2.9	3.0	3.8	3.4	3.0	2.8	3.1	3.3	3.0	2.9	2.7	2.7	2.4	2.2	2.1
3.0	3.0	3.2	3.1	3.2	3.2	2.9	2.8	2.7	2.5	2.9	3.4	3.5	6.5	6.4	3.4	3.0	2.9	3.1	3.6	3.2	2.9	2.7	3.0	3.0	3.0	2.8	3.5	3.1	2.5	2.9	3.4	3.8	3.5	3.1	3.1
2.9	2.7	3.2	3.5	3.5	3.0	3.2	3.3	3.0	2.6	2.5	2.9	3.0	3.4	3.2	3.1	3.6	4.2	3.9	3.5	3.8	3.2	2.6	2.6	2.8	3.3	3.5	4.2	4.9	5.2	4.0	3.7	2.8	3.4	3.0	2.5
2.8	3.2	3.2	3.3	3.2	3.5	2.9	2.8	3.0	3.3	3.4	3.5	3.6	3.4	3.9	3.7	4.1	4.8	4.0	4.1	4.0	4.0	3.2	3.3	3.4	3.2	4.0	4.8	5.3	5.3	4.5	4.5	3.2	2.7	2.7	3.0
3.6	3.6	3.9	3.9	4.2	4.5	4.6	4.4	4.2	4.1	3.9	4.1	4.1	3.8	4.2	4.6	4.9	5.1	4.8	5.0	4.6	4.7	4.7	3.9	4.6	7.0	4.7	3.9	3.9	3.8	3.9	4.2	3.7	3.9	4.1	3.9
4.6	4.9	4.4	4.5	4.5	4.3	5.1	4.9	4.7	4.6	3.6	3.8	4.0	4.3	4.5	5.0	5.6	5.6	4.3	4.4	4.5	4.5	4.3	4.7	5.0	5.0	5.7	5.3	4.1	4.1	4.1	4.2	3.8	4.0	4.0	4.5
3.8	5.0	5.7	5.3	4.8	4.0	3.7	3.9	3.8	3.4	3.5	3.7	4.1	5.1	4.9	5.2	5.3	4.8	4.4	4.0	3.8	4.2	3.9	4.2	3.5	3.5	4.0	4.7	3.5	3.3	3.8	3.8	3.5	3.2	2.9	3.1
4.0	4.1	4.3	3.8	3.2	2.9	2.7	2.8	3.1	3.2	3.1	3.5	3.3	2.6	2.3	2.4	2.5	2.4	3.0	3.4	3.2	2.8	3.3	4.5	4.6	4.4	4.8	4.7	4.3	3.0	2.3	3.5	4.4	5.0	4.7	4.7
2.3	3.3	3.2	3.2	2.6	2.7	2.6	2.4	2.6	3.8	2.8	2.0	2.4	3.7	3.0	2.5	2.6	3.1	3.1	2.7	2.8	3.2	2.8	2.6	2.9	3.3	3.2	2.9	2.8	2.3	2.4	1.7	1.9	2.2	2.6	2.5
3.1	2.7	2.8	3.0	3.4	3.3	3.1	3.2	4.1	5.3	4.2	3.1	3.1	4.5	4.1	3.1	2.8	3.8	4.0	3.6	2.2	2.3	3.0	3.6	3.4	3.6	3.4	3.9	4.1	3.9	3.9	4.6	4.7	4.7	3.5	2.8
4.2	4.2	4.1	3.9	3.7	3.4	3.3	3.4	4.1	4.1	4.2	4.5	4.5	4.7	3.9	4.2	4.1	3.1	3.7	4.4	4.7	5.1	3.7	4.6	4.4	3.7	3.8	3.8	4.2	4.9	4.2	5.4	5.5	4.1	4.2	4.3
3.6	4.2	4.4	3.9	4.1	3.6	3.4	3.5	3.7	3.9	4.2	4.2	4.3	4.2	4.6	4.3	4.9	4.8	4.6	5.1	5.0	4.6	4.6	4.4	4.3	4.4	4.3	4.4	5.0	4.9	4.6	4.9	5.2	4.5	4.2	4.4
3.8	3.7	4.0	3.8	3.7	3.3	3.5	3.5	3.4	3.4	3.5	3.8	3.7	3.5	3.6	3.4	3.5	4.0	4.1	4.2	4.5	4.1	3.9	3.9	3.8	3.8	3.5	3.4	3.4	4.1	4.3	4.8	4.6	4.4	4.2	4.1
3.2	2.9	2.9	3.0	3.1	3.0	3.1	2.8	2.6	2.6	2.6	2.4	2.9	2.8	2.9	2.6	3.1	2.9	3.0	2.9	3.0	3.2	2.9	2.8	2.6	2.8	2.6	2.9	2.8	3.1	3.3	2.9	3.0	3.0	2.8	3.1
2.5	2.7	2.6	2.5	2.7	2.7	2.7	2.6	2.5	2.3	2.4	2.6	2.6	2.6	2.8	2.8	2.8	2.7	2.6	2.3	2.4	2.6	3.3	4.3	3.4	2.7	3.7	4.7	5.2	4.5	4.6	4.7	3.4	2.8	2.6	2.6
2.0	2.1	2.3	2.6	3.3	3.3	2.9	2.8	2.8	2.8	2.3	2.4	2.4	2.6	2.7	3.8	5.1	6.2	6.9	7.5	8.5	8.5	7.5	6.3	6.5	6.3	6.8	7.1	5.6	4.8	4.3	3.5	3.6	3.6	3.7	2.1
4.4	3.9	3.6	3.4	3.1	3.1	2.9	2.7	2.7	3.2	4.0	4.4	4.6	4.8	4.9	4.3	4.4	4.6	4.7	4.7	4.7	5.1	5.8	6.0	5.9	6.3	6.4	5.7	4.8	4.1	3.5	3.3	3.2	3.6	5.1	4.7

Figure 32. ATOVS MEAN O-B brightness temperature differences (deg C). FEBRUARY 2001

Channel: HIRS4 (400 hPa)

NOAA15, using all observations

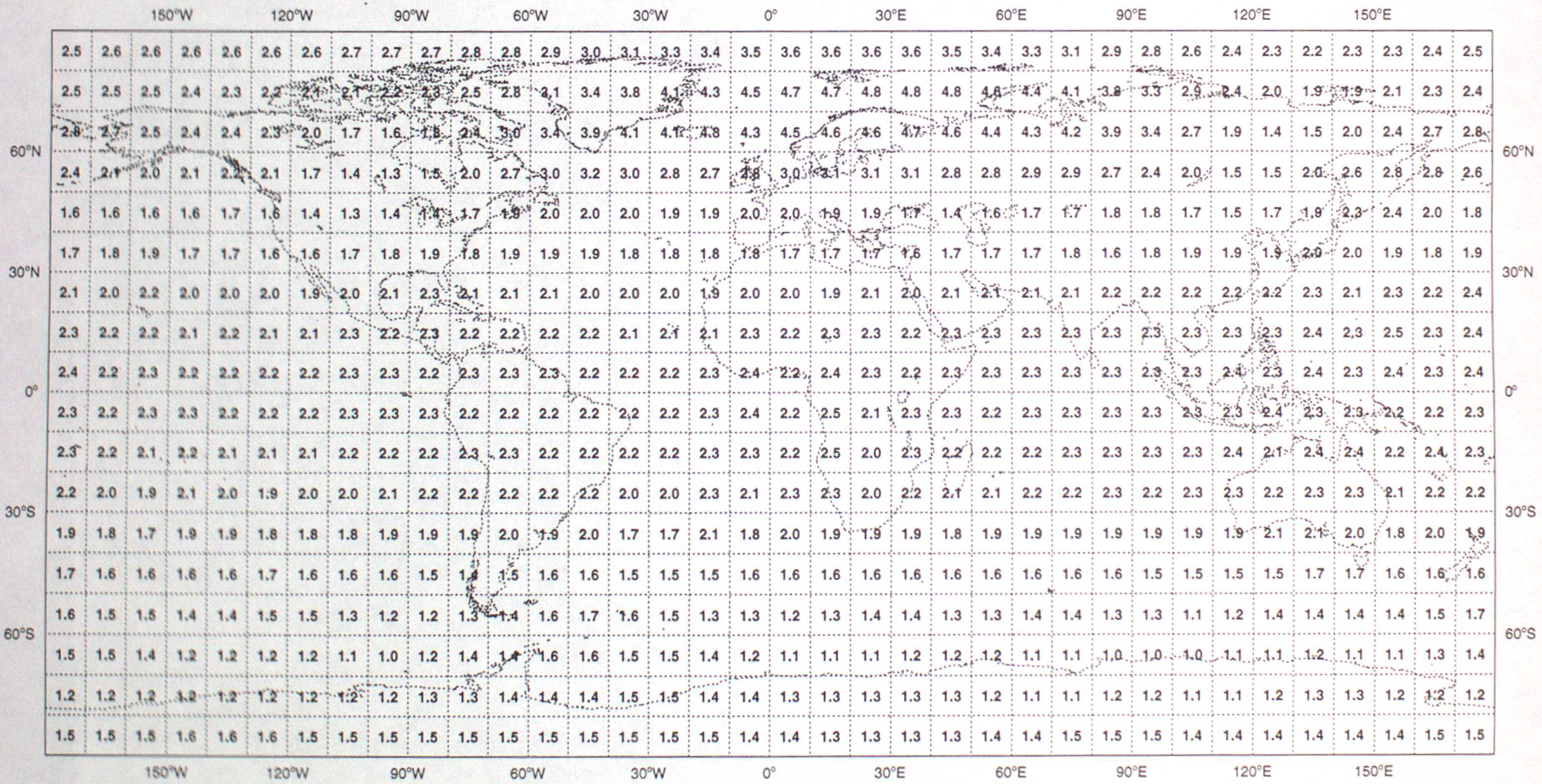


-1.7	-2.0	-2.2	-2.4	-2.4	-2.5	-2.4	-2.3	-2.0	-1.8	-1.5	-1.3	-.9	-.4	-.1	.1	.2	.4	.6	.8	1.0	1.2	1.3	1.5	1.5	1.5	1.5	1.3	1.1	.8	.5	.1	-.3	-.7	-1.1	-1.4
-2.7	-3.0	-3.1	-3.2	-3.2	-3.1	-3.1	-3.1	-2.9	-2.5	-2.0	-1.4	-.6	.5	1.1	1.0	1.2	1.3	1.6	2.0	2.4	2.9	3.4	3.6	3.7	3.6	3.4	3.1	2.7	2.2	1.6	.9	.1	-.6	-1.4	-2.2
-3.0	-3.1	-2.9	-2.7	-2.6	-2.5	-2.6	-2.6	-2.5	-2.4	-1.8	-1.0	-.2	.9	1.2	1.5	1.9	2.0	2.4	2.8	3.2	3.8	4.2	4.5	4.8	4.9	5.0	5.1	4.8	4.0	3.1	2.2	1.1	-.2	-1.3	-2.3
-2.5	-2.8	-2.4	-2.0	-1.8	-1.5	-1.5	-1.6	-1.5	-1.5	-1.2	-.6	-.1	.7	1.3	1.8	2.1	2.0	2.1	2.1	2.1	2.6	2.7	3.4	3.9	4.1	4.6	4.8	4.7	4.3	3.5	2.5	1.1	-.2	-1.2	-2.0
-1.4	-1.0	-1.1	-.9	-.9	-.7	-.5	-.4	-.3	-.4	-.3	-.2	.2	.6	1.1	1.4	1.5	1.5	1.3	1.0	1.2	1.2	1.5	1.7	2.0	2.5	2.7	2.9	2.8	2.6	2.0	1.2	.5	.0	-.7	-1.0
-1.0	-.6	-.2	-.4	-.1	-.4	-.3	-.2	-.1	-.1	.1	.0	.3	.4	.5	.5	.4	.5	.4	-.1	.4	-.1	.1	.2	.3	.8	.9	.7	.1	-.1	-.3	-.7	-1.0	-.6	-1.2	-.7
-2.0	-1.7	-.9	-1.0	-.6	-.6	-.9	-1.1	-1.2	-1.2	-1.3	-1.1	-.7	-.7	-.7	-.7	-.9	-.8	-1.1	-1.6	-1.2	-2.0	-1.7	-1.7	-1.7	-1.8	-2.1	-2.3	-2.7	-2.9	-2.8	-3.0	-3.2	-2.6	-3.1	-2.2
-3.2	-2.9	-2.2	-2.1	-1.7	-1.7	-1.9	-2.1	-2.4	-2.4	-2.5	-2.4	-2.3	-2.1	-1.8	-1.6	-1.9	-1.9	-2.6	-2.5	-2.6	-2.9	-2.8	-2.9	-2.8	-2.9	-3.1	-3.3	-3.3	-3.5	-3.5	-3.8	-4.0	-3.7	-4.2	-3.6
-3.5	-3.6	-3.1	-2.7	-2.6	-2.5	-2.7	-2.7	-2.8	-3.1	-2.9	-2.9	-2.7	-2.5	-2.5	-2.5	-2.8	-2.6	-3.3	-2.8	-3.0	-3.1	-3.0	-3.1	-2.9	-2.9	-3.0	-3.2	-3.2	-3.2	-3.3	-3.5	-3.9	-3.6	-3.9	-3.9
-3.3	-3.4	-3.0	-2.8	-2.7	-2.6	-2.7	-2.7	-2.9	-3.1	-3.0	-2.7	-2.7	-2.5	-2.6	-2.8	-2.9	-2.9	-3.2	-2.7	-3.1	-2.9	-2.9	-2.9	-2.9	-2.9	-3.0	-3.1	-3.0	-3.4	-3.3	-3.6	-3.5	-3.9	-3.7	-3.7
-3.2	-2.9	-2.8	-2.5	-2.3	-2.2	-2.3	-2.5	-2.8	-3.3	-3.3	-3.1	-3.0	-2.8	-2.7	-2.9	-3.0	-3.3	-3.7	-3.3	-3.8	-3.5	-3.2	-3.1	-3.3	-3.6	-3.9	-4.1	-4.1	-4.2	-4.7	-4.4	-4.1	-4.4	-3.4	-3.7
-3.4	-3.1	-3.3	-2.8	-2.6	-2.3	-2.3	-2.6	-2.9	-3.8	-4.1	-3.7	-3.7	-3.5	-3.3	-3.2	-3.0	-3.8	-3.7	-3.7	-3.9	-3.6	-3.4	-3.3	-3.4	-3.7	-4.0	-4.6	-4.6	-4.8	-5.0	-4.6	-4.5	-4.3	-3.4	-4.0
-3.7	-3.2	-3.7	-3.3	-3.2	-3.1	-2.8	-3.0	-3.2	-3.6	-3.8	-3.9	-3.9	-3.7	-3.5	-3.5	-3.3	-3.8	-3.3	-3.5	-3.7	-3.4	-3.5	-3.4	-3.5	-3.5	-3.5	-3.8	-3.8	-4.1	-4.5	-4.6	-4.2	-4.2	-3.6	-3.8
-4.2	-3.9	-4.3	-4.1	-4.0	-3.9	-3.8	-4.0	-4.1	-4.1	-4.1	-4.1	-4.2	-4.2	-4.2	-4.1	-4.1	-4.4	-4.0	-4.3	-4.3	-4.2	-4.2	-4.2	-4.2	-4.0	-4.0	-4.2	-4.4	-4.5	-4.6	-4.6	-4.5	-4.5	-4.3	-3.9
-5.4	-5.3	-5.1	-5.2	-5.2	-5.2	-5.3	-5.5	-5.7	-5.7	-5.6	-5.5	-5.5	-5.7	-5.5	-5.3	-5.6	-5.5	-5.7	-5.9	-5.8	-5.9	-5.8	-5.7	-5.6	-5.5	-5.4	-5.5	-5.6	-5.7	-5.8	-5.9	-5.9	-5.9	-5.8	-5.4
-6.3	-6.3	-6.3	-6.4	-6.4	-6.4	-6.4	-6.5	-6.5	-6.3	-6.1	-5.8	-5.8	-5.8	-5.7	-5.8	-6.1	-6.2	-6.4	-6.4	-6.3	-6.4	-6.3	-6.3	-6.3	-6.2	-5.8	-5.5	-5.7	-6.0	-6.2	-6.3	-6.5	-6.5	-6.6	-6.5
-6.6	-6.6	-6.5	-6.5	-6.4	-6.3	-6.1	-6.0	-5.9	-5.7	-5.6	-5.5	-5.5	-5.5	-5.7	-5.9	-5.9	-5.7	-5.4	-5.1	-4.9	-4.8	-4.7	-5.0	-5.5	-5.3	-4.7	-4.2	-4.4	-4.6	-4.8	-5.1	-5.5	-5.8	-6.2	-6.5
-6.2	-6.3	-6.3	-6.1	-6.0	-5.8	-5.6	-5.3	-5.2	-5.3	-5.4	-5.5	-5.5	-5.6	-5.6	-5.6	-5.5	-5.4	-5.3	-5.2	-5.0	-4.8	-4.5	-4.3	-4.2	-4.1	-4.1	-4.1	-4.3	-4.5	-4.7	-5.0	-5.3	-5.5	-5.7	-6.0

Figure 33. ATOVS SD O-B brightness temperature differences (deg C). FEBRUARY 2001

Channel: HIRS4 (400 hPa)

NOAA15, using all observations



2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.8	2.8	2.9	3.0	3.1	3.3	3.4	3.5	3.6	3.6	3.6	3.6	3.5	3.4	3.3	3.1	2.9	2.8	2.6	2.4	2.3	2.2	2.3	2.3	2.4	2.5
2.5	2.5	2.5	2.4	2.3	2.2	2.1	2.1	2.2	2.3	2.5	2.8	3.1	3.4	3.8	4.1	4.3	4.5	4.7	4.7	4.8	4.8	4.8	4.8	4.4	4.1	3.8	3.3	2.9	2.4	2.0	1.9	1.9	2.1	2.3	2.4
2.8	2.7	2.5	2.4	2.4	2.3	2.0	1.7	1.6	1.8	2.4	3.0	3.4	3.9	4.1	4.1	4.8	4.3	4.5	4.6	4.6	4.7	4.6	4.4	4.3	4.2	3.9	3.4	2.7	1.9	1.4	1.5	2.0	2.4	2.7	2.8
2.4	2.1	2.0	2.1	2.2	2.1	1.7	1.4	1.3	1.5	2.0	2.7	3.0	3.2	3.0	2.8	2.7	2.8	3.0	3.1	3.1	3.1	2.8	2.8	2.9	2.9	2.7	2.4	2.0	1.5	1.5	2.0	2.6	2.8	2.8	2.6
1.6	1.6	1.6	1.6	1.7	1.6	1.4	1.3	1.4	1.4	1.7	1.9	2.0	2.0	2.0	1.9	1.9	2.0	2.0	1.9	1.9	1.7	1.4	1.6	1.7	1.7	1.8	1.8	1.7	1.5	1.7	1.9	2.3	2.4	2.0	1.8
1.7	1.8	1.9	1.7	1.7	1.6	1.6	1.7	1.8	1.9	1.8	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.6	1.7	1.7	1.7	1.8	1.6	1.8	1.9	1.9	1.9	2.0	2.0	1.9	1.8	1.9
2.1	2.0	2.2	2.0	2.0	2.0	1.9	2.0	2.1	2.3	2.1	2.1	2.1	2.0	2.0	2.0	1.9	2.0	2.0	1.9	2.1	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.1	2.3	2.2	2.4
2.3	2.2	2.2	2.1	2.2	2.1	2.1	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.3	2.2	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.5	2.3	2.4
2.4	2.2	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.4	2.2	2.4	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.3	2.4	2.3	2.4
2.3	2.2	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.2	2.5	2.1	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.2	2.2	2.3
2.3	2.2	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.5	2.0	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.1	2.4	2.4	2.2	2.4	2.3
2.2	2.0	1.9	2.1	2.0	1.9	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.0	2.0	2.3	2.1	2.3	2.3	2.0	2.2	2.1	2.1	2.2	2.2	2.3	2.2	2.3	2.3	2.2	2.3	2.3	2.1	2.2	2.2
1.9	1.8	1.7	1.9	1.9	1.8	1.8	1.8	1.9	1.9	1.9	2.0	1.9	2.0	1.7	1.7	2.1	1.8	2.0	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.1	2.0	1.8	2.0	1.9
1.7	1.6	1.6	1.6	1.6	1.7	1.6	1.6	1.6	1.5	1.4	1.5	1.6	1.6	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.7	1.7	1.6	1.6	1.6
1.6	1.5	1.5	1.4	1.4	1.5	1.5	1.3	1.2	1.2	1.3	1.4	1.6	1.7	1.6	1.5	1.3	1.3	1.2	1.3	1.4	1.4	1.3	1.3	1.4	1.4	1.3	1.3	1.1	1.2	1.4	1.4	1.4	1.4	1.5	1.7
1.5	1.5	1.4	1.2	1.2	1.2	1.2	1.1	1.0	1.2	1.4	1.4	1.6	1.6	1.5	1.5	1.4	1.2	1.1	1.1	1.1	1.2	1.2	1.2	1.1	1.1	1.0	1.0	1.0	1.1	1.1	1.2	1.1	1.1	1.3	1.4
1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.4	1.4	1.4	1.5	1.5	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.2	1.1	1.1	1.2	1.2	1.1	1.1	1.2	1.3	1.3	1.2	1.2	1.2
1.5	1.5	1.5	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.3	1.3	1.3	1.3	1.4	1.4	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5

Figure 34. ATOVS MEAN O-B brightness temperature differences (deg C). FEBRUARY 2001
Channel: AMSUA-5 (700 hPa)
NOAA15, using all observations

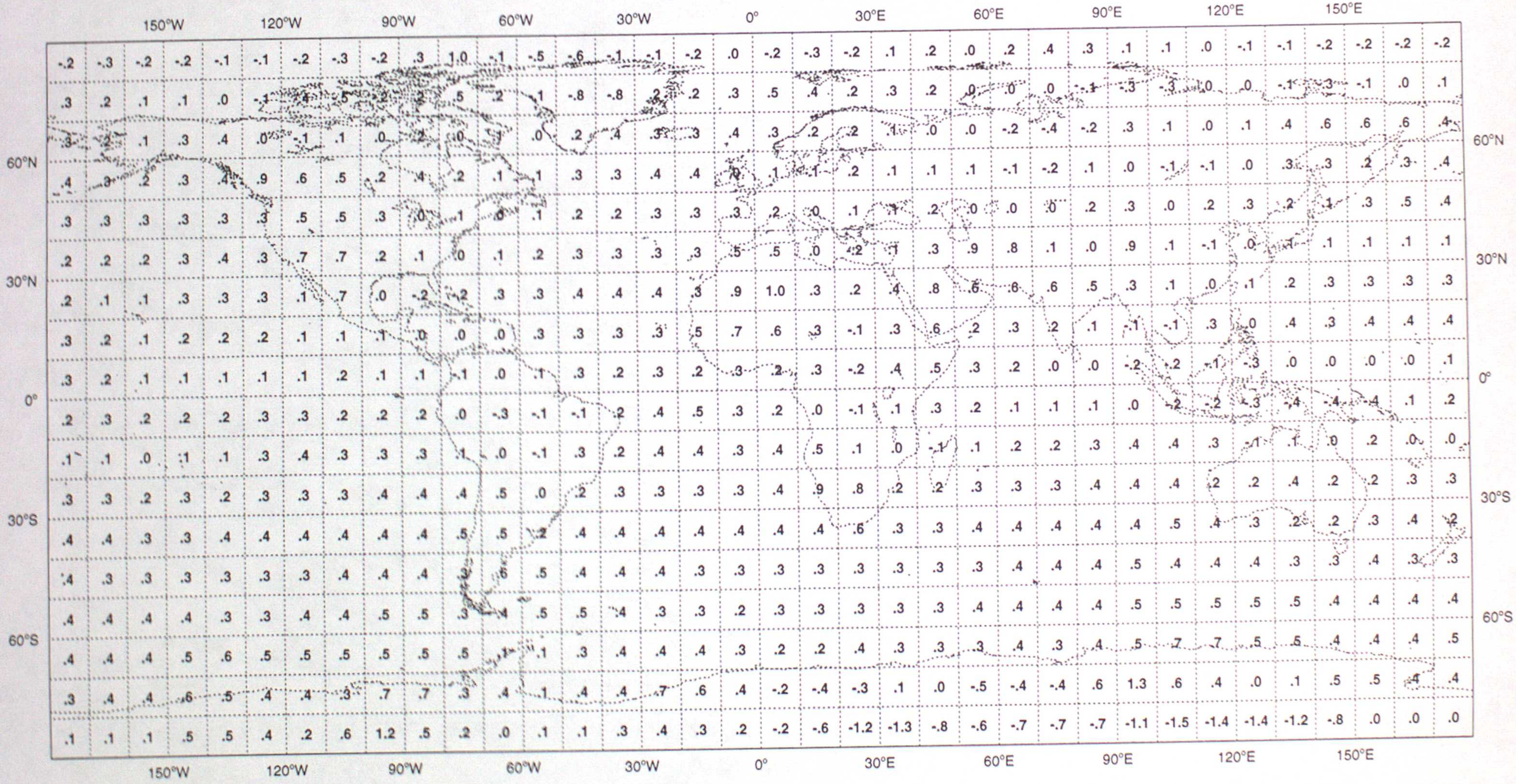

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
-.2 -.3 -.2 -.2 -.1 -.1 -.2 -.3 -.2 .3 1.0 -.1 -.5 -.6 -.1 -.1 -.2 .0 -.2 -.3 -.2 .1 .2 .0 .2 .4 .3 .1 .1 .0 -.1 -.1 -.2 -.2 -.2 -.2
.3 .2 .1 .1 .0 -.1 .4 .5 .2 .2 .5 .2 .1 -.8 -.8 .2 .2 .3 .5 .4 .2 .3 .2 .0 .0 .0 -.1 -.3 -.3 .0 .0 -.1 -.3 -.1 .0 .1
.3 .2 .1 .3 .4 .0 -.1 .1 .0 .2 .0 .1 .0 .2 .4 .3 .3 .4 .3 .2 .2 .1 .0 .0 -.2 -.4 -.2 .3 .1 .0 .1 .4 .6 .6 .6 .4
.4 .3 .2 .3 .4 .9 .6 .5 .2 .4 .2 .1 .1 .3 .3 .4 .4 .0 .1 .1 .2 .1 .1 .1 -.1 -.2 .1 .0 -.1 -.1 .0 .3 .3 .2 .3 .4
.3 .3 .3 .3 .3 .3 .5 .5 .3 .0 .1 .0 .1 .2 .2 .3 .3 .3 .2 .0 .1 .1 .2 .0 .0 .0 .2 .3 .0 .2 .3 .2 .1 .3 .5 .4
.2 .2 .2 .3 .4 .3 .7 .7 .2 .1 .0 .1 .2 .3 .3 .3 .3 .5 .5 .0 .2 .1 .3 .9 .8 .1 .0 .9 .1 -.1 .0 .1 .1 .1 .1 .1
.2 .1 .1 .3 .3 .3 .1 .7 .0 -.2 -.2 .3 .3 .4 .4 .4 .3 .9 1.0 .3 .2 .4 .8 .6 .6 .6 .5 .3 .1 .0 .1 .2 .3 .3 .3 .3
.3 .2 .1 .2 .2 .2 .1 .1 .1 .0 .0 .0 .3 .3 .3 .3 .5 .7 .6 .3 -.1 .3 .6 .2 .3 .2 .1 -.1 -.1 .3 .0 .4 .3 .4 .4 .4
.3 .2 .1 .1 .1 .1 .1 .2 .1 .1 -.1 .0 .1 .3 .2 .3 .2 .3 .2 .3 -.2 .4 .5 .3 .2 .0 .0 -.2 .2 -.1 -.3 .0 .0 .0 .0 .1
.2 .3 .2 .2 .2 .3 .3 .2 .2 .2 .0 -.3 -.1 -.1 .2 .4 .5 .3 .2 .0 -.1 .1 .3 .2 .1 .1 .1 .0 -.2 -.2 -.3 -.4 -.4 -.4 .1 .2
.1 .1 .0 .1 .1 .3 .4 .3 .3 .3 .1 .0 -.1 .3 .2 .4 .4 .3 .4 .5 .1 .0 -.1 .1 .2 .2 .3 .4 .4 .3 -.1 .1 .0 .2 .0 .0
.3 .3 .2 .3 .2 .3 .3 .3 .4 .4 .4 .5 .0 .2 .3 .3 .3 .3 .4 .9 .8 .2 .2 .3 .3 .3 .4 .4 .4 .2 .2 .4 .2 .2 .3 .3
.4 .4 .3 .3 .4 .4 .4 .4 .4 .4 .5 .5 .2 .4 .4 .4 .4 .4 .4 .4 .6 .3 .3 .4 .4 .4 .4 .4 .5 .4 .3 .2 .2 .3 .4 .2
.4 .3 .3 .3 .3 .3 .3 .4 .4 .4 .3 .6 .5 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .5 .4 .4 .4 .3 .3 .4 .3 .3
.4 .4 .4 .4 .3 .3 .4 .4 .5 .5 .3 .4 .5 .5 .4 .3 .3 .2 .3 .3 .3 .3 .3 .4 .4 .4 .4 .5 .5 .5 .5 .5 .4 .4 .4 .4
.4 .4 .4 .5 .6 .5 .5 .5 .5 .5 .5 .1 .1 .3 .4 .4 .4 .3 .2 .2 .4 .3 .3 .3 .4 .3 .4 .5 .7 .7 .5 .5 .4 .4 .4 .5
.3 .4 .4 .6 .5 .4 .4 .3 .7 .7 .3 .4 .1 .4 .4 .7 .6 .4 -.2 -.4 -.3 .1 .0 -.5 -.4 -.4 .6 1.3 .6 .4 .0 .1 .5 .5 .4 .4
.1 .1 .1 .5 .5 .4 .2 .6 1.2 .5 .2 .0 .1 .1 .3 .4 .3 .2 -.2 -.6 -1.2 -1.3 -.8 -.6 -.7 -.7 -.7 -1.1 -1.5 -1.4 -1.4 -1.2 -.8 .0 .0 .0

Figure 35. ATOVS SD O-B brightness temperature differences (deg C). FEBRUARY 2001
Channel: AMSUA-5 (700 hPa)
NOAA15, using all observations

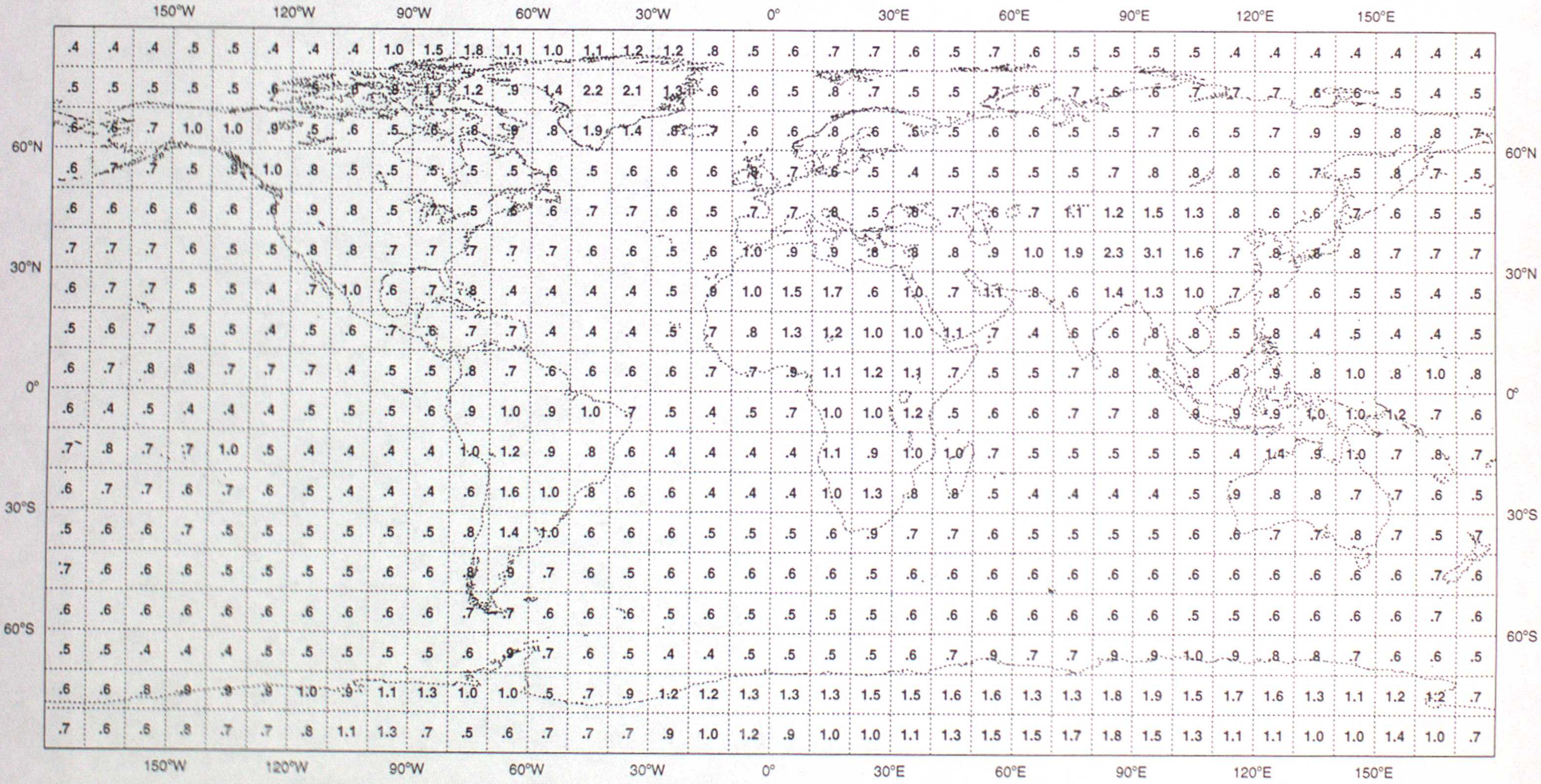

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.4 .4 .4 .5 .5 .4 .4 .4 1.0 1.5 1.8 1.1 1.0 1.1 1.2 1.2 .8 .5 .6 .7 .7 .6 .5 .7 .6 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4
.5 .5 .5 .5 .5 .6 .5 .6 .8 1.1 1.2 .9 1.4 2.2 2.1 1.3 .6 .6 .5 .8 .7 .5 .5 .7 .6 .7 .6 .6 .7 .7 .7 .6 .6 .5 .4 .5
.6 .6 .7 1.0 1.0 .9 .5 .6 .5 .6 .8 .9 .8 1.9 1.4 .8 .7 .6 .6 .8 .6 .5 .5 .6 .6 .5 .5 .7 .6 .5 .7 .9 .9 .8 .8 .7
.6 .7 .7 .5 .9 1.0 .8 .5 .5 .5 .5 .5 .6 .5 .6 .6 .6 .8 .7 .6 .5 .4 .5 .5 .5 .5 .7 .8 .8 .8 .6 .7 .5 .8 .7 .5
.6 .6 .6 .6 .6 .6 .9 .8 .5 .7 .5 .6 .6 .7 .7 .6 .5 .7 .7 .8 .5 .8 .7 .6 .7 1.1 1.2 1.5 1.3 .8 .6 .6 .7 .6 .5 .5
.7 .7 .7 .6 .5 .5 .8 .8 .7 .7 .7 .7 .7 .6 .6 .5 .6 1.0 .9 .9 .8 .8 .8 .9 1.0 1.9 2.3 3.1 1.6 .7 .8 .8 .8 .7 .7 .7
.6 .7 .7 .5 .5 .4 .7 1.0 .6 .7 .8 .4 .4 .4 .4 .5 .9 1.0 1.5 1.7 .6 1.0 .7 1.1 .8 .6 1.4 1.3 1.0 .7 .8 .6 .5 .5 .4 .5
.5 .6 .7 .5 .5 .4 .5 .6 .7 .6 .7 .7 .4 .4 .4 .5 .7 .8 1.3 1.2 1.0 1.0 1.1 .7 .4 .6 .6 .8 .8 .5 .8 .4 .5 .4 .4 .5
.6 .7 .8 .8 .7 .7 .7 .4 .5 .5 .8 .7 .6 .6 .6 .6 .7 .7 .9 1.1 1.2 1.1 .7 .5 .5 .7 .8 .8 .8 .8 .9 .8 1.0 .8 1.0 .8
.6 .4 .5 .4 .4 .4 .5 .5 .5 .6 .9 1.0 .9 1.0 .7 .5 .4 .5 .7 1.0 1.0 1.2 .5 .6 .6 .7 .7 .8 .9 .9 .9 1.0 1.0 1.2 .7 .6
.7 .8 .7 .7 1.0 .5 .4 .4 .4 .4 1.0 1.2 .9 .8 .6 .4 .4 .4 .4 1.1 .9 1.0 1.0 .7 .5 .5 .5 .5 .5 .4 1.4 .9 1.0 .7 .8 .7
.6 .7 .7 .6 .7 .6 .5 .4 .4 .4 .6 1.6 1.0 .8 .6 .6 .4 .4 .4 1.0 1.3 .8 .8 .5 .4 .4 .4 .4 .5 .9 .8 .8 .7 .7 .6 .5
.5 .6 .6 .7 .5 .5 .5 .5 .5 .5 .8 1.4 1.0 .6 .6 .6 .5 .5 .5 .6 .9 .7 .7 .6 .5 .5 .5 .5 .6 .6 .7 .7 .8 .7 .5 .7
.7 .6 .6 .6 .5 .5 .5 .5 .6 .6 .8 .9 .7 .6 .5 .6 .6 .6 .6 .6 .5 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .7 .6
.6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .7 .7 .6 .6 .6 .5 .6 .5 .5 .5 .5 .6 .6 .6 .6 .6 .6 .6 .5 .5 .6 .6 .6 .6 .7 .6
.5 .5 .4 .4 .4 .5 .5 .5 .5 .5 .6 .9 .7 .6 .5 .4 .4 .5 .5 .5 .5 .6 .7 .9 .7 .7 .9 .9 1.0 .9 .8 .8 .7 .6 .6 .5
.6 .6 .8 .9 .9 .9 1.0 .9 1.1 1.3 1.0 1.0 .5 .7 .9 1.2 1.2 1.3 1.3 1.3 1.5 1.5 1.6 1.6 1.3 1.3 1.8 1.9 1.5 1.7 1.6 1.3 1.1 1.2 1.2 .7
.7 .6 .6 .8 .7 .7 .8 1.1 1.3 .7 .5 .6 .7 .7 .7 .9 1.0 1.2 .9 1.0 1.0 1.1 1.3 1.5 1.5 1.7 1.8 1.5 1.3 1.1 1.1 1.0 1.0 1.4 1.0 .7

Figure 36. ATOVS MEAN O-B brightness temperature differences (deg C). FEBRUARY 2001
Channel: AMSUA-7 (300 hPa)
NOAA15, using all observations

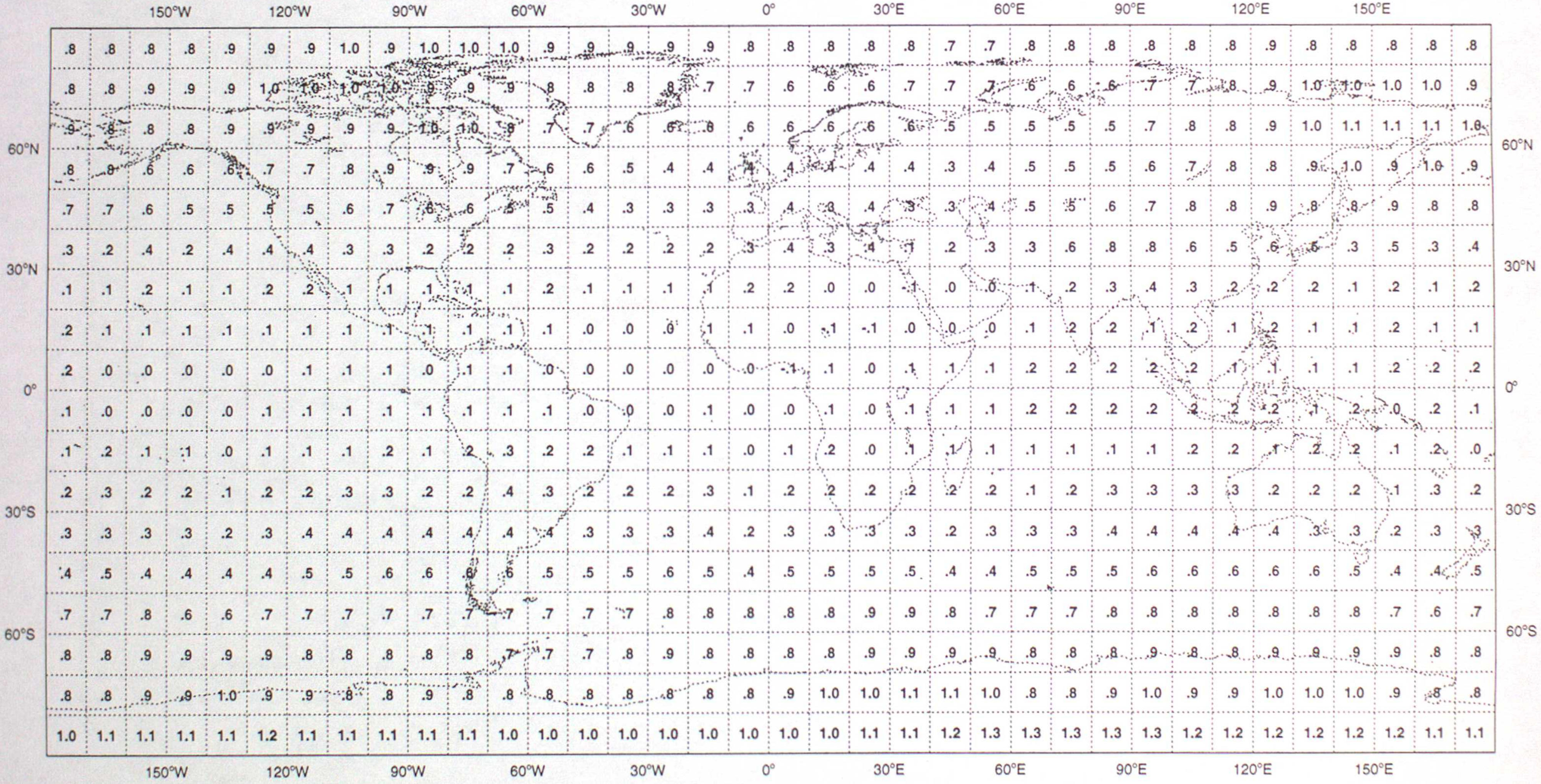

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S
.8 .8 .8 .8 .9 .9 .9 1.0 .9 1.0 1.0 1.0 .9 .9 .9 .9 .9 .8 .8 .8 .8 .8 .7 .7 .8 .8 .8 .8 .8 .8 .9 .8 .8 .8 .8 .8
.8 .8 .9 .9 .9 1.0 1.0 1.0 1.0 .9 .9 .9 .8 .8 .8 .8 .7 .7 .6 .6 .6 .7 .7 .7 .6 .6 .6 .7 .7 .8 .9 1.0 1.0 1.0 1.0 .9
.9 .8 .8 .8 .9 .9 .9 .9 .9 1.0 1.0 .8 .7 .7 .6 .6 .8 .6 .6 .6 .6 .6 .5 .5 .5 .5 .5 .7 .8 .8 .9 1.0 1.1 1.1 1.1 1.0
.8 .8 .6 .6 .6 .7 .7 .8 .9 .9 .9 .7 .6 .6 .5 .4 .4 .4 .4 .4 .4 .4 .3 .4 .5 .5 .5 .6 .7 .8 .8 .9 1.0 .9 1.0 .9
.7 .7 .6 .5 .5 .5 .5 .6 .7 .6 .6 .5 .5 .4 .3 .3 .3 .3 .4 .3 .4 .3 .3 .4 .5 .5 .6 .7 .8 .8 .9 .8 .8 .9 .8 .8
.3 .2 .4 .2 .4 .4 .4 .3 .3 .2 .2 .2 .3 .2 .2 .2 .2 .3 .4 .3 .4 .1 .2 .3 .3 .6 .8 .8 .6 .5 .6 .5 .3 .5 .3 .4
.1 .1 .2 .1 .1 .2 .2 .1 .1 .1 .1 .1 .2 .1 .1 .1 .1 .2 .2 .0 .0 -.1 .0 .0 .1 .2 .3 .4 .3 .2 .2 .2 .1 .2 .1 .2
.2 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .0 .0 .0 .1 .1 .0 -.1 -.1 .0 .0 .0 .1 .2 .2 .1 .2 .1 .2 .1 .1 .2 .1 .1
.2 .0 .0 .0 .0 .0 .1 .1 .1 .0 .1 .1 .0 .0 .0 .0 .0 .0 -.1 .1 .0 .1 .1 .1 .2 .2 .2 .2 .2 .1 .1 .1 .1 .2 .2 .2
.1 .0 .0 .0 .0 .1 .1 .1 .1 .1 .1 .1 .1 .0 .0 .0 .1 .0 .0 .1 .0 .1 .1 .1 .2 .2 .2 .2 .2 .2 .2 .1 .2 .0 .2 .1
.1 .2 .1 .1 .0 .1 .1 .1 .2 .1 .2 .3 .2 .2 .1 .1 .1 .0 .1 .2 .0 .1 .1 .1 .1 .1 .1 .1 .2 .2 .1 .2 .2 .1 .2 .0
.2 .3 .2 .2 .1 .2 .2 .3 .3 .2 .2 .4 .3 .2 .2 .2 .3 .1 .2 .2 .2 .2 .2 .2 .1 .2 .3 .3 .3 .3 .2 .2 .2 .1 .3 .2
.3 .3 .3 .3 .2 .3 .4 .4 .4 .4 .4 .4 .4 .3 .3 .3 .4 .2 .3 .3 .3 .3 .2 .3 .3 .3 .4 .4 .4 .4 .4 .3 .3 .2 .3 .3
.4 .5 .4 .4 .4 .4 .5 .5 .6 .6 .6 .6 .5 .5 .5 .6 .5 .4 .5 .5 .5 .5 .4 .4 .5 .5 .5 .6 .6 .6 .6 .6 .5 .4 .4 .5
.7 .7 .8 .6 .6 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .8 .8 .8 .8 .8 .9 .9 .8 .7 .7 .7 .8 .8 .8 .8 .8 .8 .8 .7 .6 .7
.8 .8 .9 .9 .9 .9 .8 .8 .8 .8 .8 .7 .7 .7 .8 .9 .8 .8 .8 .8 .9 .9 .9 .9 .8 .8 .8 .9 .8 .8 .9 .9 .9 .9 .8 .8
.8 .8 .9 .9 1.0 .9 .9 .8 .8 .9 .8 .8 .8 .8 .8 .8 .8 .8 .9 1.0 1.0 1.1 1.1 1.0 .8 .8 .9 1.0 .9 .9 1.0 1.0 1.0 .9 .8 .8
1.0 1.1 1.1 1.1 1.1 1.2 1.1 1.1 1.1 1.1 1.1 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.1 1.1 1.2 1.3 1.3 1.3 1.3 1.3 1.2 1.2 1.2 1.2 1.2 1.2 1.1 1.1

Figure 37. ATOVS SD O-B brightness temperature differences (deg C). FEBRUARY 2001
Channel: AMSUA-7 (300 hPa)
NOAA15, using all observations

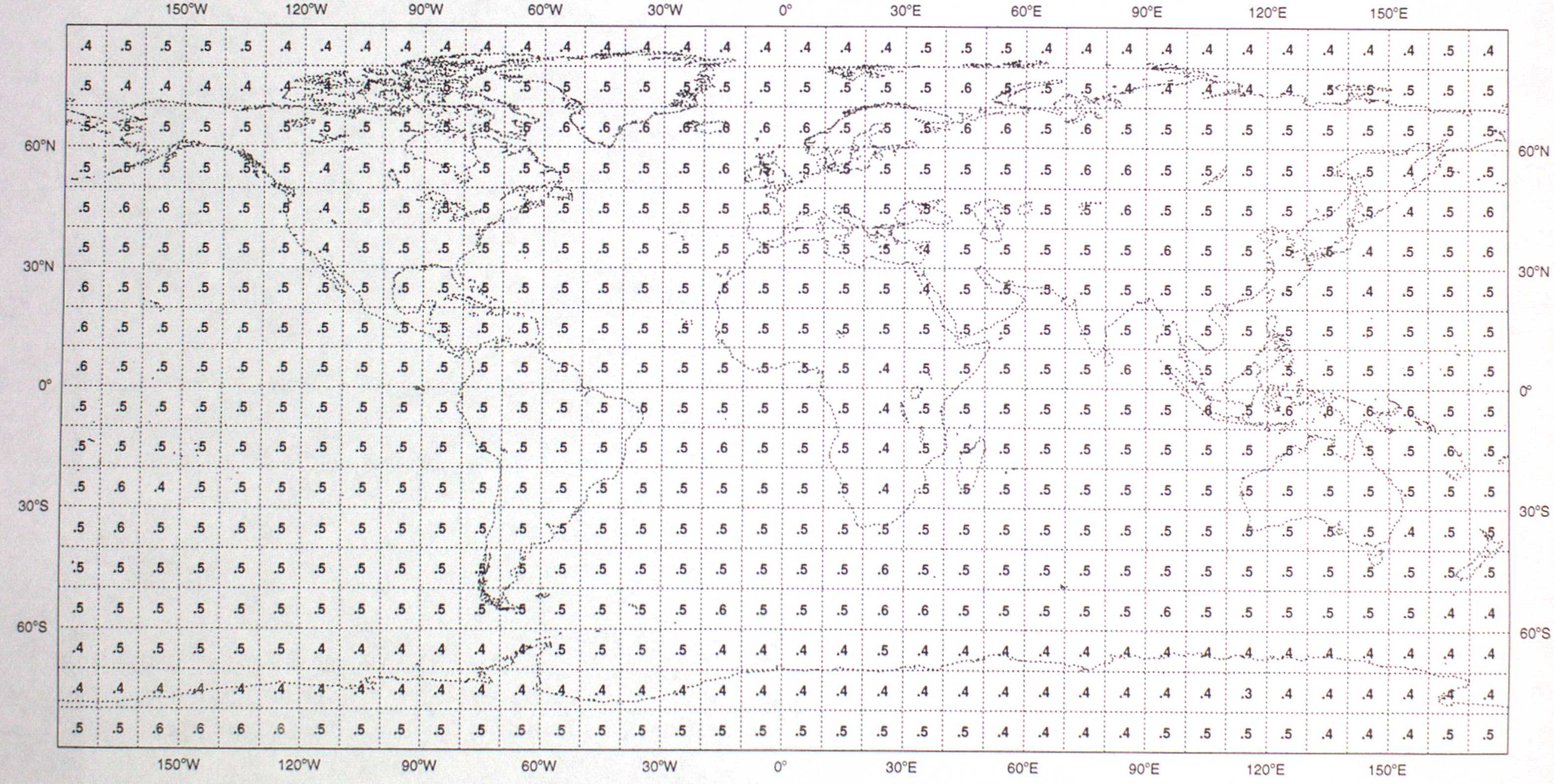
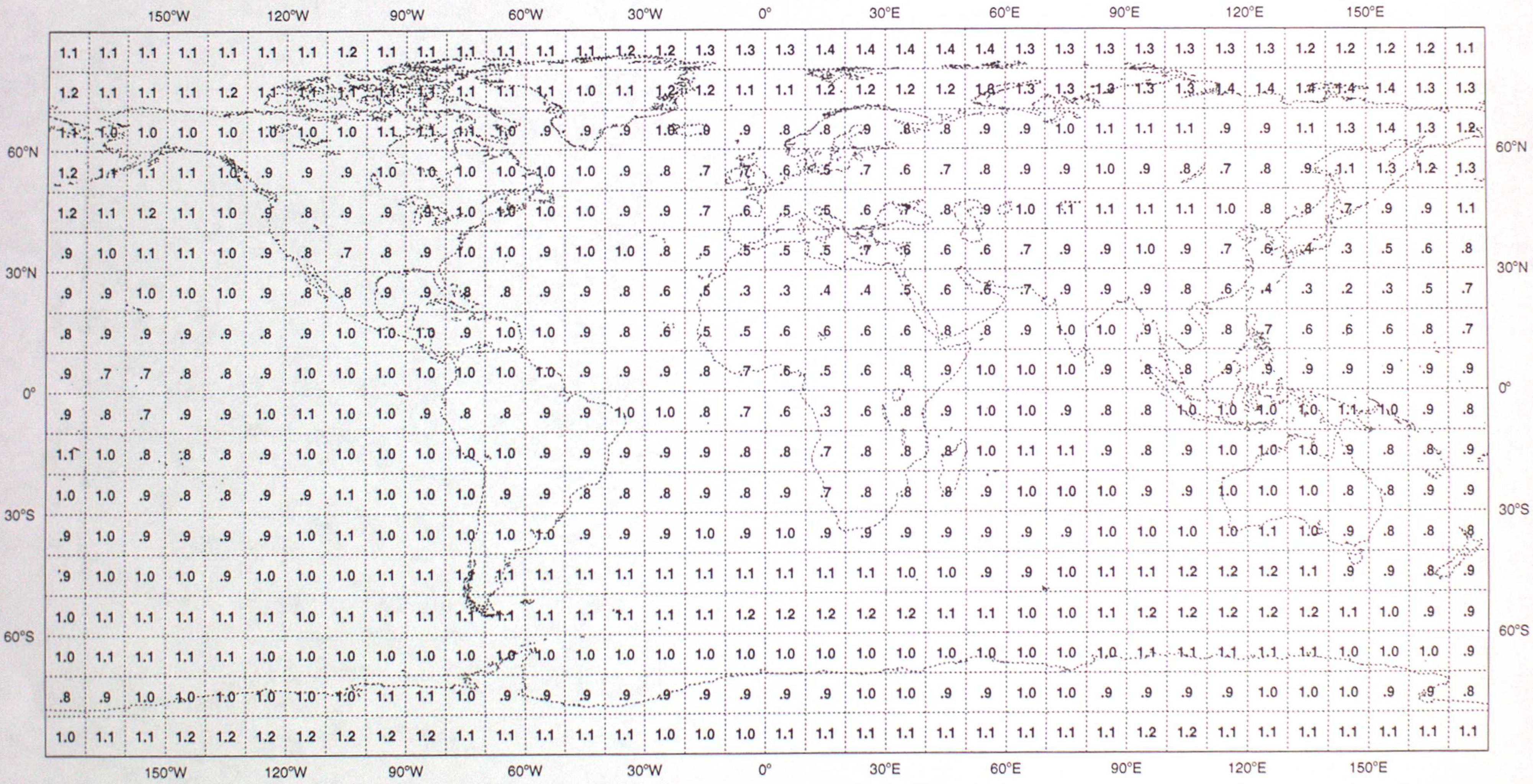

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.4 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4
.5 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .4 .4 .4 .4 .4 .5 .5 .5 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .6 .6 .6 .6 .8 .6 .6 .5 .5 .5 .6 .6 .5 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
.5 .6 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .5 .5 .5 .5 .6 .6 .5 .5 .5 .5 .5 .5 .4 .5 .5
.5 .6 .6 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .5 .5 .4 .5 .6
.5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .4 .5 .5 .6
.6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5
.6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
.6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .6 .5 .6 .8 .6 .6 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5
.5 .6 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
.5 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .6 .6 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .5 .5 .4 .4
.4 .5 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4
.5 .5 .6 .6 .6 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4 .4 .5 .5 .5 .5 .4 .4 .4 .5 .5

Figure 38. ATOVS MEAN O-B brightness temperature differences (deg C). FEBRUARY 2001
Channel: AMSUA-9 (100 hPa)
NOAA15, using all observations



1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.1
1.2	1.1	1.1	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.1	1.2	1.2	1.1	1.1	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.3	1.3
1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.0	.9	.9	.9	1.0	.9	.9	.8	.8	.9	.8	.8	.9	.9	1.0	1.1	1.1	1.1	.9	.9	1.1	1.3	1.4	1.3	1.2
1.2	1.1	1.1	1.1	1.0	.9	.9	.9	1.0	1.0	1.0	1.0	1.0	1.0	.9	.8	.7	.7	.6	.5	.7	.6	.7	.8	.9	.9	1.0	.9	.8	.7	.8	.9	1.1	1.3	1.2	1.3
1.2	1.1	1.2	1.1	1.0	.9	.8	.9	.9	.9	1.0	1.0	1.0	1.0	.9	.9	.7	.6	.5	.5	.6	.7	.8	.9	1.0	1.1	1.1	1.1	1.1	1.0	.8	.8	.7	.9	.9	1.1
.9	1.0	1.1	1.1	1.0	.9	.8	.7	.8	.9	1.0	1.0	.9	1.0	1.0	.8	.5	.5	.5	.5	.7	.6	.6	.6	.7	.9	.9	1.0	.9	.7	.6	.4	.3	.5	.6	.8
.9	.9	1.0	1.0	1.0	.9	.8	.8	.9	.9	.8	.8	.9	.9	.8	.6	.5	.3	.3	.4	.4	.5	.6	.6	.7	.9	.9	.9	.8	.6	.4	.3	.2	.3	.5	.7
.8	.9	.9	.9	.9	.8	.9	1.0	1.0	1.0	.9	1.0	1.0	.9	.8	.6	.5	.5	.6	.6	.6	.6	.8	.8	.9	1.0	1.0	.9	.9	.8	.7	.6	.6	.6	.8	.7
.9	.7	.7	.8	.8	.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	.9	.9	.9	.8	.7	.6	.5	.6	.8	.9	1.0	1.0	1.0	.9	.8	.8	.9	.9	.9	.9	.9	.9	.9
.9	.8	.7	.9	.9	1.0	1.1	1.0	1.0	.9	.8	.8	.9	.9	1.0	1.0	.8	.7	.6	.3	.6	.8	.9	1.0	1.0	.9	.8	.8	1.0	1.0	1.0	1.0	1.1	1.0	.9	.8
1.1	1.0	.8	.8	.8	.9	1.0	1.0	1.0	1.0	1.0	1.0	.9	.9	.9	.9	.9	.8	.8	.7	.8	.8	.8	1.0	1.1	1.1	.9	.8	.9	1.0	1.0	1.0	.9	.8	.8	.9
1.0	1.0	.9	.8	.8	.9	.9	1.1	1.0	1.0	1.0	.9	.9	.8	.8	.8	.9	.8	.9	.7	.8	.8	.8	.9	1.0	1.0	1.0	.9	.9	1.0	1.0	1.0	.8	.8	.9	.9
.9	1.0	.9	.9	.9	.9	1.0	1.1	1.0	1.0	1.0	1.0	1.0	.9	.9	.9	1.0	.9	1.0	.9	.9	.9	.9	.9	.9	.9	1.0	1.0	1.0	1.0	1.1	1.0	.9	.8	.8	.8
.9	1.0	1.0	1.0	.9	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	.9	.9	1.0	1.1	1.1	1.2	1.2	1.2	1.1	.9	.9	.8	.9
1.0	1.1	1.1	1.1	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.0	1.0	1.1	1.2	1.2	1.2	1.2	1.2	1.1	1.0	.9	.9
1.0	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	.9
.8	.9	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.0	.9	.9	.9	.9	.9	.9	.9	.9	.9	1.0	1.0	.9	.9	1.0	1.0	.9	.9	.9	.9	1.0	1.0	1.0	.9	.9	.8
1.0	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Figure 39. ATOVS SD O-B brightness temperature differences (deg C). FEBRUARY 2001
Channel: AMSUA-9 (100 hPa)
NOAA15, using all observations

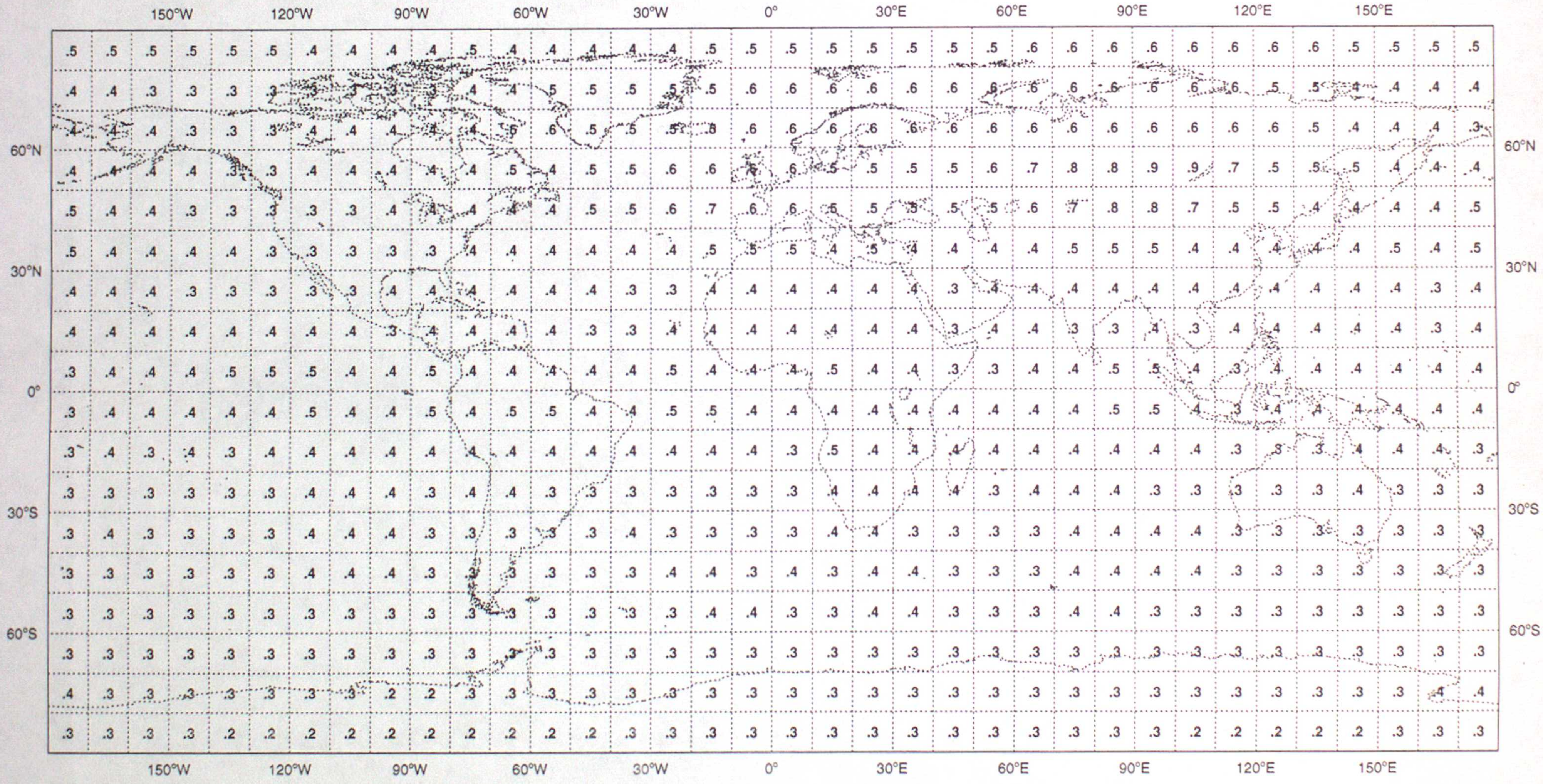

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S
.5 .5 .5 .5 .5 .5 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .6 .6 .6 .6 .6 .6 .6 .6 .5 .5 .5 .5
.4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .5 .5 .5 .5 .5 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .5 .5 .4 .4 .4 .4
.4 .4 .4 .3 .3 .3 .4 .4 .4 .4 .4 .5 .6 .5 .5 .5 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .5 .4 .4 .4 .3
.4 .4 .4 .4 .3 .3 .4 .4 .4 .4 .4 .5 .4 .5 .5 .6 .6 .6 .6 .5 .5 .5 .5 .6 .7 .8 .8 .9 .9 .7 .5 .5 .5 .4 .4 .4
.5 .4 .4 .3 .3 .3 .3 .3 .4 .4 .4 .4 .4 .5 .5 .6 .7 .6 .6 .5 .5 .5 .5 .5 .6 .7 .8 .8 .7 .5 .5 .4 .4 .4 .4 .5
.5 .4 .4 .4 .4 .3 .3 .3 .3 .3 .4 .4 .4 .4 .4 .4 .5 .5 .5 .4 .5 .4 .4 .4 .4 .5 .5 .5 .4 .4 .4 .4 .4 .5 .4 .5
.4 .4 .4 .3 .3 .3 .3 .3 .4 .4 .4 .4 .4 .4 .3 .3 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4
.4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .3 .3 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .3 .3 .4 .3 .4 .4 .4 .4 .4 .3 .4
.3 .4 .4 .4 .5 .5 .5 .4 .4 .5 .4 .4 .4 .4 .4 .5 .4 .4 .4 .5 .4 .4 .3 .3 .4 .4 .5 .5 .4 .3 .4 .4 .4 .4 .4 .4
.3 .4 .4 .4 .4 .4 .5 .4 .4 .5 .4 .5 .5 .4 .4 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .4 .3 .4 .4 .4 .4 .4 .4
.3 .4 .3 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .3 .3 .4 .4 .4 .3
.3 .3 .3 .3 .3 .3 .4 .4 .4 .3 .4 .4 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .4 .3 .4 .4 .4 .3 .3 .3 .3 .3 .4 .3 .3 .3
.3 .4 .3 .3 .3 .3 .4 .4 .4 .3 .3 .3 .3 .3 .4 .3 .3 .3 .3 .4 .4 .3 .3 .3 .3 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .4 .4 .4 .3 .3 .3 .3 .3 .3 .4 .4 .3 .4 .3 .4 .4 .3 .3 .3 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .3 .3 .4 .4 .3 .3 .3 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.4 .3 .3 .3 .3 .3 .3 .3 .2 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4
.3 .3 .3 .3 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .2 .2 .2 .2 .2 .3 .3 .3

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH: February 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoy.
Area monitored		:10°N - 80°N, 85°W - 0°W
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:All hours combined.
Elements monitored		:Mean sea-level pressure (hPa) :Wind speed (m s^{-1}) :Wind direction (degrees)
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. A positive bias indicates the observation is veered to the background**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors

GROSS ERROR LIMITS :15 hPa (pressure)
:25 m s^{-1} (Vector Wind)

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

MEAN SEA LEVEL PRESSURE

IDENTIFIER	LAT.	LONG.	HOUR.	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
31535	12.5	-64.9	ALL	P	SUR	288	0	0	0.5	1.5	1.5
41501	29.1	-76.8	ALL	P	SUR	328	0	0	1.1	1.1	1.5
41502	24.6	-77.7	ALL	P	SUR	186	0	0	0.9	1.0	1.4
41504	22.7	-67.3	ALL	P	SUR	174	0	0	1.2	0.5	1.3
41505	27.2	-65.1	ALL	P	SUR	180	0	0	1.1	-0.8	1.4
41506	23.0	-75.7	ALL	P	SUR	165	0	0	1.0	0.5	1.1
41521	29.4	-71.3	ALL	P	SUR	284	0	0	0.6	0.4	0.7
41523	30.2	-58.7	ALL	P	SUR	294	2	1	0.9	0.2	0.9
41571	32.6	-51.6	ALL	P	SUR	370	0	0	0.9	0.3	0.9
41572	22.9	-52.8	ALL	P	SUR	530	0	0	0.7	-0.2	0.7
41590	19.0	-66.6	ALL	P	SUR	456	0	0	0.6	0.6	0.9
41594	19.2	-80.4	ALL	P	SUR	549	0	0	0.5	0.6	0.8
41595	16.6	-77.4	ALL	P	SUR	572	0	0	0.5	0.4	0.7
41611	17.1	-77.5	ALL	P	SUR	512	1	0	0.5	0.4	0.7
41613	21.2	-45.8	ALL	P	SUR	528	0	0	0.7	0.2	0.7
41616	19.7	-55.6	ALL	P	SUR	543	0	0	0.6	0.3	0.6
41639	19.5	-62.8	ALL	P	SUR	222	0	0	0.7	1.0	1.3
41642	21.4	-68.8	ALL	P	SUR	257	0	0	0.6	0.3	0.7
41644	29.2	-46.7	ALL	P	SUR	293	0	0	1.0	0.2	1.0
44546	57.6	-33.5	ALL	P	SUR	622	3	0	2.1	-0.1	2.1
44548	46.5	-44.1	ALL	P	SUR	461	2	0	2.4	-0.6	2.5
44608	24.0	-39.1	ALL	P	SUR	1738	0	0	0.6	0.2	0.7
44610	53.7	-22.4	ALL	P	SUR	1433	0	0	1.3	0.1	1.3
44611	44.3	-7.3	ALL	P	SUR	605	0	0	0.6	0.9	1.1
44612	37.2	-33.5	ALL	P	SUR	849	0	0	0.9	0.1	0.9
44613	33.4	-46.7	ALL	P	SUR	720	0	0	0.9	0.0	0.9
44620	28.4	-45.9	ALL	P	SUR	638	0	0	0.6	-0.1	0.6
44622	58.1	-9.1	ALL	P	SUR	519	0	0	0.9	0.5	1.1
44623	35.6	-31.2	ALL	P	SUR	620	0	0	1.1	0.5	1.2
44628	33.8	-18.1	ALL	P	SUR	963	8	1	1.0	0.3	1.1
44723	46.1	-9.9	ALL	P	SUR	227	68	30	4.7	-2.2	5.2
44724	36.3	-19.4	ALL	P	SUR	557	0	0	0.7	0.1	0.7
44725	50.0	-42.7	ALL	P	SUR	622	0	0	1.0	-0.1	1.0
44727	27.8	-35.0	ALL	P	SUR	628	0	0	0.6	-0.8	1.0
44729	48.5	-15.5	ALL	P	SUR	609	0	0	0.9	0.5	1.0
44741	61.4	-31.2	ALL	P	SUR	615	0	0	0.8	0.5	1.0
44743	50.1	-3.4	ALL	P	SUR	1483	9	1	1.0	0.7	1.2
44761	52.2	-19.6	ALL	P	SUR	610	0	0	0.8	-0.2	0.9
44762	45.7	-12.3	ALL	P	SUR	372	0	0	0.6	0.4	0.7
44765	34.4	-47.2	ALL	P	SUR	593	2	0	2.2	-0.8	2.3
44770	53.3	-21.5	ALL	P	SUR	606	0	0	1.1	0.2	1.1
44771	53.6	-34.1	ALL	P	SUR	600	0	0	1.0	0.2	1.0
44772	44.8	-9.1	ALL	P	SUR	1254	6	0	0.8	0.0	0.8
44774	47.5	-23.9	ALL	P	SUR	1333	9	1	1.0	-0.2	1.0
44775	41.8	-55.6	ALL	P	SUR	625	2	0	1.3	0.2	1.3
44776	45.0	-44.4	ALL	P	SUR	896	0	0	1.4	0.6	1.5
44778	41.1	-48.3	ALL	P	SUR	628	1	0	1.4	0.8	1.7
44805	42.9	-68.9	ALL	P	SUR	1	0	0	0.0	-0.8	0.8
44808	40.5	-69.4	ALL	P	SUR	1	0	0	0.0	-0.8	0.8
44825	40.4	-73.2	ALL	P	SUR	2	0	0	0.9	-2.2	2.4
45735	43.8	-76.9	ALL	P	SUR	2	0	0	0.4	-0.2	0.5
48525	44.7	-63.6	ALL	P	SUR	27	0	0	0.7	-9.2	9.2
48581	71.3	-64.8	ALL	P	SUR	424	0	0	0.9	-0.3	0.9
52643	44.7	-63.6	ALL	P	SUR	40	32	80	7.4	-2.8	7.9
62504	39.1	-20.1	ALL	P	SUR	35	0	0	0.4	1.0	1.0
62507	33.6	-16.9	ALL	P	SUR	726	1	0	0.9	0.1	0.9
62513	48.4	-12.4	ALL	P	SUR	226	0	0	0.8	-0.8	1.1
62514	55.1	-13.3	ALL	P	SUR	561	2	0	1.4	0.5	1.5
62517	32.9	-15.5	ALL	P	SUR	601	0	0	0.8	-0.1	0.8
62519	42.2	-10.5	ALL	P	SUR	156	0	0	0.7	-0.5	0.9

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
62551	43.6	-17.6	ALL	P	SUR	112	0	0	0.8	1.6	1.8
62553	41.4	-16.9	ALL	P	SUR	67	0	0	0.5	0.3	0.6
62564	38.0	-17.3	ALL	P	SUR	59	0	0	0.8	0.4	0.8
62585	43.5	-17.5	ALL	P	SUR	9	0	0	1.3	-1.3	1.9
62596	63.7	-28.7	ALL	P	SUR	594	0	0	0.9	-0.1	0.9
62703	49.9	-2.9	ALL	P	SUR	1	0	0	0.0	0.4	0.4
62705	54.9	-12.6	ALL	P	SUR	1	0	0	0.0	-0.9	0.9
62708	55.0	-15.4	ALL	P	SUR	2	0	0	1.8	-2.4	3.1
62782	40.1	-17.9	ALL	P	SUR	37	0	0	2.3	-2.1	3.1
62783	44.4	-18.1	ALL	P	SUR	20	0	0	1.2	-1.4	1.8
62784	41.6	-17.4	ALL	P	SUR	19	0	0	1.2	-0.8	1.4
62801	45.2	-5.0	ALL	P	SUR	1	0	0	0.0	-1.5	1.5
62802	41.6	-20.0	ALL	P	SUR	2	0	0	0.3	-0.5	0.6
62818	57.9	0.0	ALL	P	SUR	1	0	0	0.0	-0.5	0.5
62863	47.5	-8.5	ALL	P	SUR	1	0	0	0.0	-0.4	0.4
63662	72.0	-13.6	ALL	P	SUR	155	0	0	1.6	0.1	1.6
64517	54.5	-15.8	ALL	P	SUR	1084	0	0	0.8	-0.5	1.0
64548	61.4	-14.3	ALL	P	SUR	1351	8	1	1.5	-0.4	1.5
64698	61.3	-29.9	ALL	P	SUR	1027	1	0	0.9	-0.4	1.0
64845	59.1	-11.4	ALL	P	SUR	1	0	0	0.0	0.3	0.3
65593	62.4	-35.8	ALL	P	SUR	1745	6	0	1.5	-0.5	1.6
65600	61.7	-12.8	ALL	P	SUR	1807	3	0	1.2	-0.5	1.4
65602	59.6	-31.3	ALL	P	SUR	1321	3	0	1.3	-0.6	1.5
65662	57.3	-37.2	ALL	P	SUR	487	0	0	1.4	-0.2	1.4
65663	54.3	-39.2	ALL	P	SUR	469	1	0	1.6	-0.4	1.7
WIND SPEED											
177020	26.8	-79.3	ALL	SPEED	SUR	1	0	0	0.0	2.3	2.3
336816	26.9	-79.3	ALL	SPEED	SUR	1	0	0	0.0	3.2	3.2
41501	29.1	-76.8	ALL	SPEED	SUR	302	0	0	3.8	1.6	4.1
41502	24.6	-77.7	ALL	SPEED	SUR	95	0	0	2.4	-4.8	5.4
41504	22.7	-67.3	ALL	SPEED	SUR	106	0	0	7.2	-1.7	7.4
41506	23.0	-75.7	ALL	SPEED	SUR	54	0	0	2.7	-4.9	5.6
41523	30.2	-58.7	ALL	SPEED	SUR	267	2	1	3.0	2.3	3.8
41594	19.2	-80.4	ALL	SPEED	SUR	288	98	34	7.8	5.7	9.7
41611	17.1	-77.5	ALL	SPEED	SUR	400	9	2	5.2	-3.6	6.3
41639	19.5	-62.8	ALL	SPEED	SUR	212	0	0	2.6	2.3	3.4
41642	21.4	-68.8	ALL	SPEED	SUR	253	2	1	4.1	3.0	5.0
41644	29.2	-46.7	ALL	SPEED	SUR	5	0	0	2.9	-4.5	5.3
44741	61.4	-31.2	ALL	SPEED	SUR	1	0	0	0.0	3.5	3.5
44743	50.1	-3.4	ALL	SPEED	SUR	534	1	0	1.7	-1.4	2.2
44772	44.8	-9.1	ALL	SPEED	SUR	1	1	100			
44774	47.5	-23.9	ALL	SPEED	SUR	1	1	100			
44808	40.5	-69.4	ALL	SPEED	SUR	1	0	0	0.0	0.5	0.5
44825	40.4	-73.2	ALL	SPEED	SUR	2	0	0	1.4	1.3	1.9
62504	39.1	-20.1	ALL	SPEED	SUR	35	0	0	2.3	0.6	2.4
62506	30.7	-27.4	ALL	SPEED	SUR	584	0	0	2.1	-2.5	3.3
62551	43.6	-17.6	ALL	SPEED	SUR	315	0	0	1.5	0.4	1.6
62552	45.1	-18.4	ALL	SPEED	SUR	318	0	0	1.5	0.0	1.5
62553	41.4	-16.9	ALL	SPEED	SUR	193	0	0	1.2	0.1	1.2
62554	44.3	-21.5	ALL	SPEED	SUR	184	0	0	1.5	0.0	1.5
62555	41.1	-21.3	ALL	SPEED	SUR	108	0	0	1.5	1.2	1.9
62556	39.4	-21.9	ALL	SPEED	SUR	322	0	0	1.4	0.4	1.5
62557	42.6	-15.0	ALL	SPEED	SUR	184	0	0	1.1	0.3	1.1
62558	44.4	-21.9	ALL	SPEED	SUR	326	0	0	1.4	-0.6	1.5
62560	41.4	-19.6	ALL	SPEED	SUR	146	0	0	1.2	-0.9	1.5
62561	39.4	-17.2	ALL	SPEED	SUR	142	0	0	1.7	-0.2	1.7
62562	38.3	-19.2	ALL	SPEED	SUR	111	3	3	7.3	1.9	7.5
62563	39.9	-18.1	ALL	SPEED	SUR	13	0	0	2.0	-1.0	2.2
62564	38.0	-17.3	ALL	SPEED	SUR	167	0	0	1.1	0.5	1.2
62565	42.2	-20.0	ALL	SPEED	SUR	123	0	0	1.5	-0.6	1.6
62566	41.6	-19.3	ALL	SPEED	SUR	199	0	0	1.3	-0.1	1.3

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND SPEED											
62567	42.5	-21.2	ALL	SPEED	SUR	298	0	0	1.4	0.4	1.4
62569	40.7	-19.0	ALL	SPEED	SUR	153	0	0	1.1	0.7	1.3
62570	44.9	-21.6	ALL	SPEED	SUR	285	0	0	1.6	0.4	1.6
62571	44.5	-17.4	ALL	SPEED	SUR	186	0	0	1.4	-0.5	1.5
62703	49.9	-2.9	ALL	SPEED	SUR	1	0	0	0.0	1.2	1.2
62705	54.9	-12.6	ALL	SPEED	SUR	1	0	0	0.0	-1.0	1.0
62801	45.2	-5.0	ALL	SPEED	SUR	1	0	0	0.0	-1.6	1.6
62802	41.6	-20.0	ALL	SPEED	SUR	1	0	0	0.0	-0.2	0.2
62818	57.9	0.0	ALL	SPEED	SUR	1	0	0	0.0	-1.4	1.4
62863	47.5	-8.5	ALL	SPEED	SUR	1	0	0	0.0	-2.0	2.0
62967	42.4	-21.1	ALL	SPEED	SUR	1	0	0	0.0	-1.4	1.4
659911	26.0	-79.4	ALL	SPEED	SUR	1	0	0	0.0	3.2	3.2
706114	26.3	-78.0	ALL	SPEED	SUR	1	0	0	0.0	0.9	0.9
WIND DIRECTION											
41501	29.1	-76.8	ALL	DIRN.	SUR	160	0	0	26.2	6.2	26.9
41504	22.7	-67.3	ALL	DIRN.	SUR	23	0	0	15.4	14.3	21.0
41523	30.2	-58.7	ALL	DIRN.	SUR	176	2	1	58.7	30.5	66.1
41594	19.2	-80.4	ALL	DIRN.	SUR	200	98	49	29.9	-49.6	57.9
41611	17.1	-77.5	ALL	DIRN.	SUR	110	9	8	23.5	21.3	31.8
41639	19.5	-62.8	ALL	DIRN.	SUR	197	0	0	15.8	-5.7	16.8
41642	21.4	-68.8	ALL	DIRN.	SUR	232	2	1	15.2	-1.3	15.2
44741	61.4	-31.2	ALL	DIRN.	SUR	1	0	0	0.0	0.5	0.5
44743	50.1	-3.4	ALL	DIRN.	SUR	449	1	0	15.8	-3.0	16.1
44772	44.8	-9.1	ALL	DIRN.	SUR	1	1	100			
44774	47.5	-23.9	ALL	DIRN.	SUR	1	1	100			
44808	40.5	-69.4	ALL	DIRN.	SUR	1	0	0	0.0	-12.3	12.3
44825	40.4	-73.2	ALL	DIRN.	SUR	1	0	0	0.0	-16.9	16.9
62504	39.1	-20.1	ALL	DIRN.	SUR	22	0	0	12.0	1.4	12.1
62506	30.7	-27.4	ALL	DIRN.	SUR	94	0	0	15.1	34.8	37.9
62551	43.6	-17.6	ALL	DIRN.	SUR	152	0	0	13.1	-6.6	14.7
62552	45.1	-18.4	ALL	DIRN.	SUR	152	0	0	19.2	13.5	23.5
62553	41.4	-16.9	ALL	DIRN.	SUR	108	0	0	12.4	4.7	13.2
62554	44.3	-21.5	ALL	DIRN.	SUR	92	0	0	13.6	-21.9	25.8
62555	41.1	-21.3	ALL	DIRN.	SUR	30	0	0	20.9	-13.6	24.9
62556	39.4	-21.9	ALL	DIRN.	SUR	188	0	0	14.0	6.8	15.6
62557	42.6	-15.0	ALL	DIRN.	SUR	172	0	0	9.5	9.4	13.3
62558	44.4	-21.9	ALL	DIRN.	SUR	131	0	0	13.6	31.3	34.2
62560	41.4	-19.6	ALL	DIRN.	SUR	83	0	0	9.4	26.3	27.9
62561	39.4	-17.2	ALL	DIRN.	SUR	62	0	0	50.7	-26.7	57.3
62562	38.3	-19.2	ALL	DIRN.	SUR	49	3	6	13.1	4.3	13.7
62564	38.0	-17.3	ALL	DIRN.	SUR	81	0	0	11.1	-11.0	15.6
62565	42.2	-20.0	ALL	DIRN.	SUR	69	0	0	12.3	-3.4	12.8
62566	41.6	-19.3	ALL	DIRN.	SUR	135	0	0	9.2	-19.2	21.3
62567	42.5	-21.2	ALL	DIRN.	SUR	163	0	0	12.9	-5.5	14.0
62569	40.7	-19.0	ALL	DIRN.	SUR	111	0	0	11.9	-6.4	13.5
62570	44.9	-21.6	ALL	DIRN.	SUR	113	0	0	14.1	-9.0	16.7
62571	44.5	-17.4	ALL	DIRN.	SUR	109	0	0	14.6	15.6	21.4
62705	54.9	-12.6	ALL	DIRN.	SUR	1	0	0	0.0	5.8	5.8
62801	45.2	-5.0	ALL	DIRN.	SUR	1	0	0	0.0	-11.2	11.2
62802	41.6	-20.0	ALL	DIRN.	SUR	1	0	0	0.0	-65.1	65.1
659911	26.0	-79.4	ALL	DIRN.	SUR	1	0	0	0.0	33.0	33.0
706114	26.3	-78.0	ALL	DIRN.	SUR	1	0	0	0.0	7.2	7.2

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: February 2001

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:40°N - 70°N, 60°W - 0°W.
Standard of comparison		:Background field from UKMO global model.
Observation times		:All hours combined.
Level(s) monitored		:300.0 - 150.0 hPa
Elements monitored		:TEMP in °C ; WIND in m s^{-1}
Parameters monitored	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.
GROSS ERROR LIMITS	:10.0 °C ; 60 m s^{-1} Vector Wind	
SELECTION CRITERIA	:N REP $\geq$ 20	

NB : All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	1790	1	4	1.5	0.0	1766	0	5	0	8.4	0.4
ACA	1340	1	4	1.7	0.0	1350	0	3	0	6.8	0.8
AEA	288	0	3	2.0	0.3	286	1	6	0	9.4	1.3
AEL	294	1	10	1.8	-0.7	300	1	11	0	7.7	0.5
AEY	82	0	2	2.0	1.3	83	0	2	0	6.5	0.5
AFL	282	1	4	1.9	0.5	287	0	5	0	8.9	0.3
AFR	1015	0	5	1.8	0.0	1027	0	6	0	7.5	1.1
AIH	166	0	4	1.8	-0.1	169	1	5	0	7.2	1.3
AJM	76	1	1	1.9	-0.1	76	0	1	0	9.5	0.6
ALM	32	0	6	1.9	-0.6	31	0	3	0	5.8	0.5
AMM	82	0	2	1.7	0.3	84	1	74	0	9.9	1.2
AMX	152	1	6	2.2	0.0	151	1	5	0	8.5	1.2
ANZ	98	0	58	2.0	-0.9	97	0	57	0	4.4	0.6
AOM	367	2	4	1.7	0.4	367	0	2	0	7.3	1.1
AVA	68	0	1	1.7	0.4	68	1	6	0	10.3	0.3
AZA	503	0	63	1.9	-0.1	512	0	5	0	7.7	0.8
BAL	120	0	8	1.9	-0.2	120	0	8	0	7.3	1.2
BAW	720	1	10	1.9	0.0	724	0	10	0	7.1	1.3
BBB	23	0	0	0.9	0.3	21	0	0	0	7.0	2.4
BLX	27	0	0	1.3	-0.6	28	0	0	0	7.8	2.2
BWA	69	0	100	2.4	1.6	69	1	10	0	11.4	1.5
CDN	53	2	6	1.6	0.0	53	0	6	0	7.4	1.1
CFC	38	3	16	2.5	0.3	39	0	15	0	9.2	2.2
CFG	460	0	2	1.6	-0.8	465	0	3	0	8.3	1.1
CKS	20	0	15	2.7	0.4	20	0	10	0	8.3	2.3
CLX	280	1	3	1.6	-0.4	286	0	3	0	8.3	0.0
CMM	87	3	8	1.9	0.0	90	0	4	0	6.7	1.6
COA	289	1	9	1.6	-0.3	289	0	11	0	9.5	1.2
CRL	388	1	5	2.2	1.0	398	0	4	0	7.5	1.1
CTB	29	0	7	1.5	0.3	29	0	7	0	7.0	1.5
CUB	95	0	1	1.8	1.2	96	0	6	0	10.4	1.2
DAL	1065	0	19	1.5	-0.4	1061	0	21	0	8.3	0.9
DBY	191	0	2	1.6	-0.2	194	1	3	0	7.3	0.8
DLH	977	0	5	1.4	0.2	982	1	5	0	5.9	0.7
EDW	40	0	0	1.7	-0.2	41	0	0	0	6.4	1.6
EEZ	64	0	100	2.5	1.2	60	0	10	0	7.5	0.9
ELY	64	0	6	1.3	0.0	70	0	9	0	8.8	1.2
EWW	132	0	3	1.4	0.0	133	0	3	0	6.8	2.4
FDX	691	0	29	1.8	0.2	703	0	29	0	8.2	1.2
FIN	361	0	5	1.7	0.1	362	0	7	0	8.6	0.8
GAF	29	0	0	1.3	-0.4	29	0	3	0	6.8	0.6
GCO	115	0	6	1.4	0.2	114	0	100	0	14.4	2.8
GRL	45	0	4	1.4	0.2	45	0	9	0	7.7	0.5
GTI	93	0	3	1.9	-0.7	95	1	7	0	10.8	1.1
HLF	56	0	4	1.1	-0.5	56	0	7	0	11.1	1.7
IBE	1092	0	6	1.8	0.2	1078	0	7	0	8.7	1.3
ICE	933	1	4	1.6	0.0	919	0	5	0	7.5	0.7
JKK	183	0	7	1.6	-0.1	172	0	8	0	7.7	2.3
JMC	59	0	3	1.5	1.1	59	0	3	0	6.8	1.5
KLM	1308	1	9	1.7	0.2	1326	0	9	0	7.1	0.8
LDA	76	1	4	1.3	-0.4	75	1	5	0	6.7	1.3
LDI	476	0	3	1.6	-0.7	480	0	4	0	7.7	1.0
LIB	150	1	2	1.6	0.8	153	1	8	0	12.4	-0.1
LOT	231	1	7	1.7	-1.0	232	0	6	0	6.7	0.1
LTU	207	1	3	1.7	-0.3	198	1	3	0	6.5	0.9
MAS	43	0	2	2.1	0.6	43	0	100	0	5.9	0.5
MON	56	0	0	1.6	0.2	58	0	0	0	5.1	1.2
MPD	77	0	1	1.5	-0.1	75	1	4	0	8.9	0.9
MPH	466	0	2	1.9	-0.6	474	0	3	0	7.8	0.8

		TEMPERATURE				WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
NVR	34	0	0	1.4	-0.1	34	0	0	0	5.0	-0.1
NWA	2874	1	2	1.5	0.4	2870	0	3	0	7.4	0.7
PAC	88	1	5	1.4	-0.1	87	2	11	0	10.0	0.3
RAM	36	0	8	1.9	-0.7	36	0	8	0	8.9	2.0
RCH	61	2	3	2.6	0.7	61	2	39	0	14.5	3.4
RJA	22	5	14	1.6	0.0	21	0	10	0	5.9	2.4
RRR	63	0	11	2.0	-0.3	61	2	18	0	10.5	2.4
RZO	41	0	7	1.4	-0.6	42	2	100	0	8.2	1.5
SIA	43	0	0	1.5	-0.6	43	0	0	0	6.0	-0.2
SLR	140	1	6	1.5	-0.1	140	0	6	0	7.2	1.7
SVA	34	3	9	1.2	0.3	38	0	5	0	7.8	2.4
SWR	29	10	17	2.5	-0.8	29	0	21	0	18.5	2.9
TAP	197	0	2	1.5	-0.4	195	0	5	0	9.1	1.2
TSC	24	0	0	1.2	0.1	24	0	0	0	7.4	2.5
TWA	379	1	4	1.7	0.1	361	1	6	0	7.6	0.9
UAL	1064	1	100	1.6	-0.2	1084	0	100	0	6.6	0.5
UPS	672	0	29	1.6	0.4	669	0	30	0	6.9	0.6
USA	176	1	3	1.3	-0.3	145	0	4	0	7.5	1.5
VIR	452	0	2	1.5	-0.1	458	0	5	0	8.5	0.7
VKG	62	0	2	1.9	-0.1	64	0	0	0	5.2	0.8
VPB	24	0	0	1.8	0.7	24	0	0	0	5.1	1.1
EU	20463	0	14	1.3	0.0	20463	0	14	0	5.0	0.5
KL	3097	0	7	1.3	0.8	3099	0	7	0	5.1	0.8
LH	300	0	14	1.6	1.0	298	0	14	0	4.7	0.9
N	366	1	4	2.3	0.9	366	0	4	0	7.3	0.6
US ACARS	25536	5	35	1.3	0.3	25536	0	28	0	5.5	0.9

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: February 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from selected radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from UKMO global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :100 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored
- :NUM OBS :Number of observations available at level shown during period.
- :NUM GROSS :Number of gross errors at level shown during period.
- :SD :SD of difference of observations from background values at level shown excluding those with gross errors.
- :BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
ELML7	00	Z	100	10	0	25.9	27.9	10.4
ELML7	12	Z	100	8	0	10.6	28.8	26.8
FNCM	00	Z	100	15	0	10.4	21.0	18.3
FNCM	12	Z	100	16	0	14.9	16.5	6.9
FNOR	00	Z	100	5	0	15.5	21.3	14.6
FNOR	12	Z	100	4	0	15.6	15.8	2.5
FNOU	00	Z	100	11	0	14.1	25.6	21.4
FNOU	12	Z	100	13	0	16.1	22.2	15.3
FNPH	00	Z	100	8	0	11.6	15.2	9.9
FNPH	12	Z	100	8	0	14.0	14.4	3.3
FNRS	00	Z	100	8	0	10.0	17.0	13.8
FNRS	12	Z	100	4	0	20.6	23.3	10.8
LDWR	00	Z	100	21	0	16.8	18.7	-8.3
LDWR	12	Z	100	26	0	20.7	21.0	-3.4
OVYA2	00	Z	100	9	0	20.9	21.7	-5.9
OVYA2	12	Z	100	8	0	15.4	19.3	-11.8
OXTS2	00	Z	100	18	0	21.1	24.1	-11.6
OXTS2	12	Z	100	16	0	14.0	17.9	-11.1
SWJS	12	Z	100	1	0	0.0	3.0	3.0
ZCBP6	00	Z	100	4	0	17.4	17.4	0.0
ZCBP6	12	Z	100	6	0	24.1	24.2	2.0
03953	00	Z	100	24	0	25.5	26.6	7.8
03953	12	Z	100	28	0	14.0	18.5	12.0
04018	00	Z	100	25	0	15.7	17.9	8.6
04018	12	Z	100	28	0	15.2	18.9	11.2
04220	00	Z	100	27	0	11.1	11.4	2.6
04220	12	Z	100	28	0	15.1	16.3	-6.1
04270	00	Z	100	26	0	21.8	21.8	1.5
04270	12	Z	100	26	0	19.1	21.1	-9.1
04339	00	Z	100	25	0	10.7	11.7	4.7
04339	12	Z	100	26	0	14.1	14.1	1.5
04360	00	Z	100	26	0	22.0	23.3	7.5
04360	12	Z	100	27	0	15.9	16.0	-0.9
08001	00	Z	100	24	0	19.4	19.7	3.3
08001	12	Z	100	25	0	17.9	19.4	-7.4
08508	00	Z	100	27	0	11.7	18.7	14.6
08508	12	Z	100	28	0	16.7	20.6	12.0
08522	12	Z	100	27	0	13.5	14.7	6.0
08594	12	Z	100	21	0	33.5	36.8	15.3
60020	00	Z	100	26	0	10.2	28.9	27.0
60020	12	Z	100	26	0	20.9	24.0	11.7
71600	00	Z	100	26	0	11.7	16.6	-11.8
71600	12	Z	100	28	0	16.1	22.5	-15.6
72201	00	Z	100	24	0	22.5	23.7	7.3
72201	12	Z	100	28	0	21.4	22.9	8.1
72402	00	Z	100	26	0	15.7	22.2	15.7
72402	12	Z	100	26	0	14.1	21.5	16.2
74494	00	Z	100	22	0	12.4	12.4	-1.1
74494	12	Z	100	27	0	11.1	26.4	-23.9
78016	12	Z	100	24	0	16.9	24.2	17.3

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: February 2001

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
ELML7	00	Z	500	15	0	18.6	19.0	3.7
ELML7	12	Z	500	11	0	11.9	14.2	7.8
FNCM	00	Z	500	17	0	14.4	15.2	4.7
FNCM	12	Z	500	17	0	13.5	16.3	9.2
FNOR	00	Z	500	6	0	4.7	6.1	4.0
FNOR	12	Z	500	4	0	8.3	10.7	6.8
FNOU	00	Z	500	12	0	6.7	9.9	7.3
FNOU	12	Z	500	13	0	8.3	14.3	11.6
FNPH	00	Z	500	10	0	10.7	11.3	3.6
FNPH	12	Z	500	9	0	8.9	9.0	1.4
FNRS	00	Z	500	9	0	8.4	9.4	4.2
FNRS	12	Z	500	6	0	5.2	6.4	3.7
LDWR	00	Z	500	21	0	9.7	10.0	-2.2
LDWR	12	Z	500	26	0	13.4	13.5	-1.7
OVYA2	00	Z	500	11	0	11.6	13.8	-7.5
OVYA2	12	Z	500	10	0	8.8	10.6	-5.9
OXTS2	00	Z	500	19	0	22.9	32.9	-23.6
OXTS2	12	Z	500	17	0	20.5	30.6	-22.6
SWJS	12	Z	500	1	0	0.0	2.0	2.0
ZCBP6	00	Z	500	4	0	10.4	10.4	1.3
ZCBP6	12	Z	500	6	0	13.3	18.6	13.0
03953	00	Z	500	26	0	9.4	9.9	3.2
03953	12	Z	500	28	0	9.5	13.0	8.9
04018	00	Z	500	25	0	9.5	10.3	4.0
04018	12	Z	500	28	0	14.1	14.5	3.0
04220	00	Z	500	27	0	11.9	13.6	-6.6
04220	12	Z	500	28	0	15.2	19.1	-11.5
04270	00	Z	500	27	0	15.4	15.6	2.3
04270	12	Z	500	26	0	12.1	12.2	2.0
04339	00	Z	500	25	0	12.8	13.2	3.5
04339	12	Z	500	26	0	11.0	11.0	-1.4
04360	00	Z	500	26	0	19.0	19.0	-0.7
04360	12	Z	500	27	0	15.0	16.8	-7.6
08001	00	Z	500	24	0	10.5	10.5	-0.3
08001	12	Z	500	25	0	10.4	10.4	1.1
08508	00	Z	500	27	0	13.4	13.5	-1.2
08508	12	Z	500	28	0	13.1	13.9	4.6
08522	12	Z	500	27	0	10.5	15.6	11.6
08594	12	Z	500	25	0	12.5	13.3	-4.6
60020	00	Z	500	26	0	9.0	10.2	4.8
60020	12	Z	500	26	0	10.7	14.9	10.4
71600	00	Z	500	26	0	8.9	14.2	-11.0
71600	12	Z	500	28	0	16.9	19.3	-9.3
72201	00	Z	500	26	0	5.1	5.6	-2.4
72201	12	Z	500	28	0	7.4	10.9	-7.9
72402	00	Z	500	26	0	8.7	8.7	0.1
72402	12	Z	500	27	0	9.3	9.4	1.1
74494	00	Z	500	26	0	9.7	10.3	-3.5
74494	12	Z	500	27	0	8.3	10.2	-5.9
78016	12	Z	500	26	0	11.8	16.3	11.3

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: February 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
ELML7	00	V	100	9	0	0	6.2	-0.5	2.9
ELML7	12	V	100	8	0	0	5.6	-1.7	-0.7
FNCM	00	V	100	13	0	0	4.6	0.6	-0.5
FNCM	12	V	100	14	0	0	4.8	-1.6	0.9
FNOR	00	V	100	5	0	0	5.6	1.5	0.1
FNOR	12	V	100	4	0	0	5.4	3.4	-0.7
FNOU	00	V	100	11	0	0	7.0	-1.4	1.1
FNOU	12	V	100	13	0	0	5.7	-1.6	1.6
FNPH	00	V	100	2	0	0	3.2	0.4	1.4
FNPH	12	V	100	4	0	0	4.2	1.5	-2.6
FNRS	00	V	100	4	0	0	5.9	1.7	1.9
FNRS	12	V	100	4	0	0	6.0	2.8	2.2
LDWR	00	V	100	21	0	0	3.4	0.5	-0.9
LDWR	12	V	100	26	0	0	3.7	0.8	-1.0
OVYA2	00	V	100	9	0	0	2.9	1.2	-0.4
OVYA2	12	V	100	6	0	0	4.5	-2.8	-0.5
OXTS2	00	V	100	13	0	0	4.5	0.1	-0.9
OXTS2	12	V	100	13	0	0	3.4	0.8	-0.2
SWJS	12	V	100	1	0	0	2.7	-2.5	-0.9
ZCBP6	00	V	100	4	0	0	5.1	-1.2	-0.9
ZCBP6	12	V	100	6	0	0	1.7	-0.6	-0.4
03953	00	V	100	23	0	0	3.5	0.3	-0.6
03953	12	V	100	28	0	7	3.5	1.0	-0.9
04018	00	V	100	25	0	4	5.4	0.0	-1.0
04018	12	V	100	28	0	0	4.1	0.1	-0.6
04220	00	V	100	27	0	0	3.4	0.0	0.3
04220	12	V	100	28	0	0	3.6	-0.5	0.5
04270	00	V	100	26	0	0	5.8	-0.3	0.3
04270	12	V	100	26	0	0	4.8	-1.5	0.4
04339	00	V	100	22	0	0	5.8	-1.8	0.4
04339	12	V	100	26	0	0	5.0	-0.4	-0.1
04360	00	V	100	26	0	0	4.0	-0.2	-0.5
04360	12	V	100	27	0	3	4.4	-1.6	0.5
08001	00	V	100	23	0	0	4.8	2.3	0.2
08001	12	V	100	24	0	0	4.0	-0.7	-0.3
08508	00	V	100	15	0	0	4.6	0.6	1.1
08508	12	V	100	14	0	0	4.8	0.5	-0.9
08522	12	V	100	27	0	0	6.1	0.1	1.2
08594	12	V	100	21	0	100	7.1	-0.9	4.5
60020	00	V	100	24	0	0	5.6	1.9	0.3
60020	12	V	100	25	0	0	6.8	1.2	2.5
71600	00	V	100	26	0	0	4.1	1.1	-1.0
71600	12	V	100	28	0	0	3.8	-0.2	-0.2
72201	00	V	100	24	0	0	5.2	1.3	2.0
72201	12	V	100	28	0	0	4.7	0.1	0.4
72402	00	V	100	26	0	0	4.2	0.0	-0.5
72402	12	V	100	25	0	0	5.0	-0.3	0.9
74494	00	V	100	20	0	0	4.1	-0.9	1.4
74494	12	V	100	22	0	0	3.8	0.4	0.3
78016	12	V	100	22	0	0	5.7	0.8	-0.6

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: February 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from selected radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from UKMO global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :500 hPa.

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:UBIAS,VBIAS: Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
ELML7	00	V	500	13	0	0	4.7	-0.1	-0.2
ELML7	12	V	500	11	0	0	4.7	1.3	0.2
FNCM	00	V	500	15	0	0	3.4	0.5	-0.6
FNCM	12	V	500	15	0	0	5.1	-0.2	-1.6
FNOR	00	V	500	6	0	0	2.4	0.6	0.4
FNOR	12	V	500	4	0	0	4.5	0.2	3.4
FNOU	00	V	500	11	0	0	4.8	0.7	-0.1
FNOU	12	V	500	13	0	0	4.7	-1.7	0.3
FNPH	00	V	500	3	0	0	4.7	1.4	2.4
FNPH	12	V	500	4	0	0	4.9	-2.0	1.6
FNRS	00	V	500	4	0	0	2.2	0.7	1.2
FNRS	12	V	500	5	0	0	4.3	0.0	0.6
LDWR	00	V	500	21	0	0	4.7	0.1	-0.7
LDWR	12	V	500	26	0	0	5.8	0.2	-0.5
OVYA2	00	V	500	11	0	0	6.1	0.2	0.3
OVYA2	12	V	500	8	0	0	4.2	0.8	-0.4
OXTS2	00	V	500	19	0	0	5.1	0.2	2.3
OXTS2	12	V	500	16	0	0	4.9	1.2	-0.8
SWJS	12	V	500	1	0	0	5.4	5.3	-1.0
ZCBP6	00	V	500	4	0	0	4.5	1.0	3.1
ZCBP6	12	V	500	6	0	0	7.3	-3.4	2.5
03953	00	V	500	26	0	0	5.3	0.8	0.1
03953	12	V	500	28	0	10	6.7	1.2	-0.3
04018	00	V	500	23	0	0	4.7	0.6	-0.4
04018	12	V	500	28	0	0	5.0	0.9	-0.7
04220	00	V	500	27	0	0	4.4	0.2	0.8
04220	12	V	500	27	0	0	4.4	0.6	-0.2
04270	00	V	500	26	0	0	4.1	-0.5	0.3
04270	12	V	500	26	0	0	4.3	0.6	0.1
04339	00	V	500	25	0	12	9.7	0.3	0.4
04339	12	V	500	26	0	3	7.0	0.3	0.1
04360	00	V	500	26	0	0	4.9	-0.1	0.2
04360	12	V	500	27	0	0	5.5	-0.9	-0.2
08001	00	V	500	24	0	0	3.9	1.3	-0.5
08001	12	V	500	25	0	0	4.6	0.1	-0.3
08508	00	V	500	16	0	0	4.6	0.7	-0.4
08508	12	V	500	12	0	0	5.9	0.9	1.9
08522	12	V	500	27	0	0	4.9	1.0	0.0
08594	12	V	500	25	0	100	4.6	0.1	0.3
60020	00	V	500	25	0	0	5.7	-0.2	-0.1
60020	12	V	500	24	0	0	5.3	0.7	0.2
71600	00	V	500	26	0	0	4.8	1.1	0.4
71600	12	V	500	28	0	0	5.1	1.2	-0.5
72201	00	V	500	26	0	0	3.8	-0.9	-0.3
72201	12	V	500	28	0	0	3.0	0.0	-0.6
72402	00	V	500	26	0	0	2.9	0.1	-0.1
72402	12	V	500	26	0	0	3.4	0.8	1.0
74494	00	V	500	26	0	0	5.1	-1.0	1.5
74494	12	V	500	27	0	0	4.2	-1.4	1.9
78016	12	V	500	26	0	0	3.8	1.2	-0.5

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45